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# THE MONIST

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## WHAT REMAINETH?

"That the things unshaken may remain."  
—*Hebrews* xii. 27.

RECENTLY I received a letter from a distinguished minister in a foreign land, a letter that impressed me deeply. He had given great attention to the Jesus-question for a number of years and had become finally and entirely convinced of the essential correctness of the radical or symbolic interpretation of the Gospel story, and in particular of the unhistorical character of its central figure. He had tried hard to keep his own conversion out of the pulpit, to inhibit or restrain its influence on his preaching and his pastoral ministrations, but in vain. Despite his utmost efforts he found that it colored his speech and his life, that he was no longer the same man but undisguisably another. To him the change was a great uplift and illumination, and to his flock in general it seemed not unwelcome; they heard him gladly and were ready to follow whither his thought might lead. Not so with the "rich deacons," the officers, and the representatives of the "vested interests" in the church.<sup>1</sup> Of these the opposition seemed irreconcilable. In particular they insisted that with the vanishing of Jesus as an historical character the whole structure of the faith passed away with a great noise, that "there was nothing left whatever." Accordingly they tighten their

<sup>1</sup> An early reviewer of *Ecce Deus*, discussing the work very sympathetically in a Tokio publication, predicted that the author's view, though logically and historically correct, could not prevail against the hostility of the "vested interests."

purse-strings, they refuse support to a Christianity which they declare has been voided of all its content, and it is not strange that the worthy minister finds himself in a deplorable plight. One thing is certain: he will not compromise his convictions in any measure. He will not tamper with the truth as he now sees it clearly, but will abide the consequences with the firmness of a Luther. All honor to such a hero of the New Reformation!

At first sight one might feel inclined to sympathize with the wealthy members of this congregation and to ask in all seriousness, What remains of Christianity when the historical character of the Jesus is surrendered? Some time ago an illustrious British philosopher, who had been deeply impressed by reading *Der vorchristliche Jesus*, who had written me that he was more and more persuaded that "the view of the Christian *origines*" (therein set forth) was "in the main on right lines," who had indeed expounded that view in an address before a certain society, on reading *Ecce Deus* wrote to me again, in a mood of apparent unrest. He could see no way to adapt the conception of proto-Christianity, as a monotheistic crusade, to the condition of the present age; what message or meaning could such a Christianity have for us, who are born monotheists? All the inspiration, the enthusiasm, the significance of the Gospel proclamation seems to evaporate in the presence of an audience long since convinced, to whom it is nothing new or strange, but a mere truism, who never saw an idol and never expect to see one.

It cannot be gainsaid that there is much force in such considerations, especially these latter of the metaphysician. But the force is by no means logical, it is weakly and even absurdly sentimental. It is a queer objection to proto-Christianity that it has accomplished its mission, that it has converted the civilized world to the recognition of the One God, that its Gnosis has celebrated a complete triumph,

that it has utterly overthrown every resistant form of idolatry and has fulfilled to the letter the proud prediction concerning its apostles, that Satan (false worship) should fall like lightning from heaven before them. The world has in fact been *saved* by this glad Evangel from the fearful sin of idolatry, the sin from which it promised salvation. What more could be expected? A patient is sick and nigh unto death; a wise physician appears and applies a healing drug that saves the sufferer's life and cures his malady completely. What then? The cure being effected, the drug is no longer needed. Shall we now reject the physician and belittle his drug because it heals no longer when there is no longer anything to heal? Surely not. It is very true that the "Eternal Gospel" of monotheism may fail to stir the depths of the present already monotheistic consciousness; but in the beginning it was not addressed to any such, but on the contrary to a consciousness intensely, exclusively, and often fanatically polytheistic. This monotheistic Gospel was precisely the one and the only conceivable one to arouse, excite, enchain, enthrall, and finally completely overcome and transform that polytheistic consciousness. It is the height of unreason to suppose that the greatest religious reformation the world has ever known should not have been aimed directly against the one great religious error of the day, the one thing religious that needed reforming. There was then a positive necessity that proto-Christianity, born in the Jewish Dispersion, should be a protest against idolatry, a crusade for the worship of the One God; it could be nothing else than a "Gospel everlasting to preach unto the dwellers upon earth and to every nation and tribe and tongue and people, saying with a mighty voice, Fear God and give Him glory" (Rev. xiv. 6-7). All the conditions of the time not only favored but even demanded such a proclamation, hence its immense and incomparable success. But the very

completeness of the success, by its total transformation of all the conditions of the case, does indeed disqualify the oldest Gospel to be at the same time the newest, to be the desiderated Gospel of to-day. Yet all this argues no fault in that earliest Evangel, quite the contrary; the Evangel was perfectly fitted to its time and clime.

It is clear, then, as the noonday that it is an utter lapse in logic to carp at the radical interpretation of primitive Christianity because the occupation of such Christianity is gone for the West of to-day. It is not the function of radical criticism to provide a faith that shall meet the aspirations of the twentieth-century European-American, as the early monotheistic preaching met those of the Græco-Roman nineteen hundred years ago. It is the function of that criticism to make the past intelligible, to reduce the experience of our fathers (so far as it lies discovered in testimonies of this kind and of that) to order and to acknowledged law, and so to carry forward the greatest task that human thought sets for itself, of attaining a unity of the spiritual universe. The look of that criticism is turned not forward but backward, not upon the ages to come but upon the ages gone, though its ultimate goal is of course the perfect realization of the Eternal Spirit. Accordingly the radical critic does not forget To-morrow in his study of Yesterday, which he must see clearly and see whole. If proto-Christianity (as revealed by the new criticism) be alien or unequal to the demands of the hour, that may be the best of reasons for transcending it by some Neo-Gospel, some new morn risen upon its waning light; but it is no reason at all for rejecting the revelations of that criticism or depreciating their significance or embarrassing their dissemination.

All this seems so self-evident that the writer feels ashamed to insist upon it; is it not a waste of words to enforce such truisms at such length? Certainly, if it were

not likewise sadly true that the prevailing theory and practice are exactly the opposite. The age is pragmatic and disposed to accept as true only that which works; though the philosopher in question has dealt most telling blows at theoretical pragmatism, he has unconsciously fallen into its trap, and would object to the radical view of the early Gospel that such a Gospel would not work well to-day! In presence of such a judgment in such a quarter, one is not surprised that the great multitude of such as are willing to think at all on the subject are altogether impatient of the critical processes that compel one to the radical view and are ready to settle the question by asking, "How would such a view affect the minds of to-day? Would it work well in social and commercial life, in preaching, in charity, in organization? If not, then it is not for us, no matter what may be the critical evidence in the case." This is somewhat like, though far worse than, saying, "Is the value of the circummetric ratio,  $\pi$ , as a transcendental irrational, readily manageable in the calculations of engineering? If not, then we will have not of it, no matter what the mathematicians may say; the value  $2\frac{1}{4}$  is good enough for us." Yet without this transcendental value of  $\pi$ , inexpressible in any closed form, we could never have an *exact* algebra, metric geometry, or trigonometry, to say nothing of higher mathematics; all of which lie out of the view of the true pragmatist. The foregoing waste of words has then been necessary, if only to detain the reader and force him to consider the matter.

We may now advance a step and ask the question, What in truth remains of current Christianity on acceptance of the certain critical result, the non-historicity of the Jesus? The first and most obvious answer is that *proto-Christianity remains*, the Christianity of the first and part of the second century, the Christianity of the Apostles, of the early missionaries, even of the great Gnostics,—and let it

not be forgotten that with the illustrious Clement of Alexandria (150-220) the "perfect Gnostic" and the perfect Christian are the same. If any one denies this, well and good, the issue is immediately joined; "to the law and the testimony." We are at once upon the critical terrain, where we like to be, where and where alone such matters must be debated and adjudged. Only be it remembered that it is solely a question of evidence, that only logical canons are admitted, and that the verdict of the testimony in the case is to be accepted as final, along with all its necessary consequences, be they what they may. Of course, in this brief paper no full presentation of the evidence can be attempted; some of it is already set forth in *Der vorchristliche Jesus* and in *Ecce Deus* and in writings pertaining thereto; but not nearly all. In this connection it is practicable only to call attention to a few outlying and also outstanding facts additional to those mentioned in the works just named, especially to the commanding facts of the *Teaching* and the *Shepherd*.

Of these the first is the oldest known manual of Christian doctrine and practice. Of course, like nearly all such writings, it is a compilation, but a very old one, nearly all of it is earlier than the second century, and much of it dates back into the first, some of it perhaps even beyond. Its testimony is therefore of the highest value, it is unimpeachable, and it is unequivocal. Now the *Teaching* knows nothing whatever of any human or historical *Jesus*. Aside from three or four obvious interpolations, the name itself is unknown to this ancient and revered "Doctrine of the Apostles." Besides, the whole tenor and spirit of the document shows that it did not proceed in whole or in part from a consciousness informed with the idea of an historical *Jesus*, such as reigns in modern Christian dogma and is supposed to be present in the New Testament Scriptures. This celebrated *Didachē* reveals and presents the earliest

Apostles as quite independent of any such notion as the modern assumes to have been the very pivot and hinge, the kernel and the essence of apostolic preaching. Herewith indeed the modern assumption is utterly exploded, but it is the argumentative value of the *Teaching*, not in relation to the Jesus-question, that now concerns us, but only in relation to the question of the *value* of the alleged historical character in the early apostolic preaching. Even if we were to cling fast to the disputed historicity (as Bousset does), we should yet have to admit (with Bousset in his *Kyrios Christos*) that its value was practically zero in that early preaching, even of Paul and of James and the New Testament worthies in general. The demonstration then is overwhelming, that the human-historic Jesus did not figure appreciably in the glorious first preaching of the Gospel.

If now we pass to the *Shepherd* of Hermas, we find this conclusion not so much corroborated as demonstrated decisively, independently, and anew. The *Shepherd* may be dated somewhere between 95 and 135, near the beginning of the second century. It proceeds from Rome, from the heart of the Christian consciousness of that day; it was almost a vade-mecum of the two centuries following its birth, one of the most popular of early Christian works; it was highly esteemed, even as inspired and authoritative, by the best minds of the Church, as by Origen; its value as a book to be read was conceded even by such as denied it to be canonical (e. g., the author of the Muratorian Fragment); true, it was rejected by Tertullian and such, but for the reason, irrelevant to the present discussion, that it was too forbearing in treatment of sexual irregularities. Now this *Pastor* of Hermas never mentions the name Jesus, it never hints at a Gospel incident, it knows apparently nothing whatever of the supposed Gospel history, it makes not the least use whatever of the supposed fundamental

and indispensable *motif* of the exemplar life, of the historical figure, of the human Jesus. Remember, too, that this *Poimen* is distinguished among early Christian writings by its great length, surpassing that of any Gospel, and it appears past controversy that the *motif* in question could not have bulked sensibly in that early Christian consciousness of Rome at the beginning of the second century of our era.

If now we turn to the New Testament itself, we find that a number of its documents even in their present interpolated form are yet entirely innocent of the debated historicity. The Epistle of "James, Servant of God and the Lord Jesus Christ" stands at the head of the General Epistles, yet it hints nothing whatever concerning the central historic-human figure of the modern faith; such a figure has no apparent existence for this James, though he has been supposed to have been the "Brother of the Lord." Similarly, in the "Revelation of Jesus Christ which God gave him," which "I John" beheld and reported, ascribed to the "beloved disciple" and especial intimate of the "Carpenter of Nazareth," there is no allusion at all to the New Testament story, no hint of any kind at the human-historic character in question. Yet this important document, however complex and uncertain its origin, does undoubtedly mirror the early Christian consciousness with extraordinary vividness, especially as it prevailed among the Messianists, whom great critics (like Conybeare) and eschatologists in general regard as the *very earliest of all Christians*.<sup>2</sup> And in this testimony the Jesus is exclusively a divine being with no suggestion of human history. Such an impressive phenomenon may well have been painful to some later historizing Catholic, who has tried to relieve the situation by inserting at xi. 8, after "the great City,"

<sup>2</sup> "It (Christianity) was at first a Messianic movement among Jews": Conybeare's *The Historical Christ*, p. 74. See the present writer's review of this work in *The Open Court*, March, 1915, pp. 163-189.

the words, "which is called spiritually Sodom and Egypt, where also their Lord was crucified." An interpolation could hardly be more patent. "Revelation" reveals an intensely Jewish consciousness, yet here the "holy city" of verse 3 is called "Sodom and Egypt," which betrays a mind just as intensely anti-Jewish.—In the Epistle "To Hebrews" we also find a Christian consciousness for which the Jesus is a divine being, for which the human-historic counts extremely little, if indeed it be not altogether absent. The few vague and scanty suggestions of this latter element are very probably mere marginal observations of later copyists or of more deliberate falsifiers in the interest of the "historic" dogma.

The like may be said of many other phrases and clauses lying loose in the context of the Epistles, which may be easily shaken out by a light breath of criticism. They were inserted in the body of a text that originally knew nothing of the human-historic Jesus, with intent to catholicize the document, to adapt it to the later biographic dogma that has thus intruded itself and finally elbowed nearly everything else out of the Christian doctrine.<sup>3</sup>

The contention does not indeed seem extravagant that the whole body of earliest Christian writings, until interpolated as aforesaid, was free from any trace of influence of the human-historic Jesus. And in this connection it is worth while to remark that it is now admitted in such a recent and authoritative work as *The Problem of the Fourth Gospel*, by H. Latimer Jackson, D.D. (Cambridge University Press), that this greatest of the Gospels is a free work with no pretension of conformity to modern standards of history and biography, a "spiritual" or mystical "Gospel" imparting the new truth in symbols, "pre-

<sup>3</sup> The writer has devoted several elaborate memoirs to the exposition of the foregoing propositions, and these he hopes to publish as soon as "the star of peace returns," and the public eye and ear may be caught by some other literature than that of the War.

serving the spiritual meaning in what one may venture to call bodily falsehoods" (says Origen). Herewith this Gospel vanishes from the scene as a witness to "the historic Jesus." Yet it is by far the most seeming-historic of the four Gospels, it employs much the largest number of biographic minutiae, it strives to produce by all odds the most vivid picture of a living breathing flesh-and-blood personality. And yet it is confessedly allegory, its testimony is null! How much more, then, the Synoptics, which omit nearly all such finer biographic touches and sketch a divine figure in a few bold strokes of the brush, where the symbolism lies plain at hand and there is far less attempt to produce an historic illusion!

Turn, then, which way you will, it becomes clearer and clearer that the human-historic element is either practically or totally absent from the earliest Christian literature and therefore from the earliest Christian consciousness, of which that literature is a fairly faithful reflection. We may therefore repeat with all emphasis our earlier thesis, that the vanishing historicity leaves all proto-Christianity behind it. We may reject the human-historic element and still be as true Christians as those first so called at Antioch.

Not for an instant does the writer imagine that this result will be found satisfactory, no matter how well assured. It looks like juggling with words to say that primitive Christianity abides when its center and focus disappears as a human-historic figure. But it is not. The reason for this false appearance is that we forget what a rapid and prodigious growth befell the earliest teaching under the excessive hot-house culture of the highly composite and adventurous circummediterranean mind of the early Christian centuries. That mind positively rioted in endless excursions in every direction in the wide-opened fields of religious-philosophic fancy; the plant of dogma grew up and branched and budded and bloomed in amazing fashion;

what is far more, it was engrafted with alien shoots from distant gardens, shoots that struck deep root in the native stem and spread out into overshadowing foliage. Like an immense Banyan tree this new nurture of an ancient stock has stretched itself abroad over the whole terrain of our emotional and intellectual life. And yet in spite of this world-shadowing outgrowth and ingrowth, the primitive germ was simple and familiar: it was the Oneness of God, a Jewish faith preached to a Gentile world. The immeasurable excrescence and increscence were both perhaps historically necessary and intelligible, but they no longer serve any useful purpose; nay more, they serve to divert and absorb countless streams of energy, which can ill be spared from other and far more important channels of diffusion. Only consider the mountainous up-piling of theological books and pamphlets and periodicals, practically all of which are *dispensable*. We have no quarrel with such at present, but the authors themselves must know in their secret hearts that such works are of supererogation, they have little or no meaning for the present or the future. The like may be said of the multitude which no man can number of soporific sermons addressed to somnolent congregations every Sunday from Eastern Russia to Western California. That they signify nothing is made clear by the contrast with Billy Sunday. The preachers, conscious that they themselves are only sounding brass and tinkling cymbals, go in throngs to sit at the feet of this notorious mountebank, hoping to learn something from the tricks of a faker, to catch holy fire from the eruptions of a "movie" volcano!

However, all such general considerations will still be found inconclusive, such is the immovable mountain of eighteen centuries of prejudice before us! Who shall say unto it, "Be thou removed hence and cast into the sea"?

But at least let us come to close quarters and ask in how far is the current faith, the faith of to-day, dependent upon the alleged historic-human figure of Jesus? In answering this question it may be best to consider the so-called "Apostles' Creed" (*symbolum apostolicum*, an ancient expansion of a still more ancient baptismal confession, which every one knows and concedes was not due, but unknown, to the Apostles) and examine its articles in detail;—of course, we cannot touch upon the learned questions of the provenience of this creed, the birth of three centuries, or of its relations to the Roman Creed, the Creed of Antioch, and others.

I (a) "I believe in (one) God the Father Almighty, Maker of heaven and earth." This calls for no comment; it is the monotheistic dogma and has nothing to do with the Jesus.

I (b) "And in Jesus Christ his only Son our Lord." In this the Jesus appears only in his divine character as Son and Lord, the human-historic is not yet present. The notion of the "Son-of-God" is extremely old, pre-Christian by many centuries, appearing in countless forms and phases of meaning. It is quite out of the question to attempt any discussion of this vague and fluent idea in this connection; it must suffice to state that the notion in no way whatever implies the dogma of a human-historic Jesus; any one rejecting this dogma may still affirm this article in just as good faith and honesty as any one accepting the dogma.

II (a) "Who was conceived by the Holy Ghost, (b) Born of the Virgin Mary; (c) Suffered under Pontius Pilate, (d) Was crucified, dead and buried; (e) He descended into hell, (f) The third day he rose (again) from the dead; (g) He ascended into heaven, (h) And sitteth on the right hand of God the Father Almighty; (i) From thence he shall come to judge the quick and the dead." This second article, with its nine sub-articles, is the distinctively

deutero-Christian contribution to this Apostles' Creed, it summarizes and makes precise the quasi-historic element as this gradually took shape in the Christian mind of the second and third centuries under the stress of conflict between the Gnostic and the Catholic parties. It is the stratified precipitate of centuries of the most daring speculation and the most subtle and often acrid controversy. It represents the final triumph of the literalists, of the historic and materialistic over the symbolic and spiritualistic interpreters. Its generations of authors have succeeded in making its statements verbally precise and unequivocal, narrating a biography in familiar every-day terms. What they have failed to do is to put any *meaning* into the words they have used. After striking out the original symbolic and mystical or spiritual content, they have been unable to supply any other.

Let us test this assertion in detail.

(a) "Who was conceived by the Holy Ghost," (b) "Born of the Virgin Mary." As historical and biographical, such words have no discussable meaning whatever. It is vain to raise scruples dark and nice about parthenogenesis in certain lower forms of life, or about artificial fertilization of ova by saline solutions or other means. We may concede even human virgin birth as a physical possibility, but all such considerations are entirely irrelevant; certainly none such were in the minds of the authors of these articles of faith. There is no question of any physical process whatever; "who was conceived by the Holy Ghost, Born of the Virgin Mary." Such events are entirely beyond the range of modern imagination or speculation. It is impossible for us to attach to them any biographic or historic meaning whatever. Homer indeed tells of many a virgin that couched with a godhead immortal, but these blessed gods were only men and women of finer grain than the earth-born, who sipped ambrosia and nectar,

in whose veins flowed ichor instead of blood: such a deity was easy enough to fantasy, and the poet's words held an imaginable meaning. And this is true even of his statement concerning the steeds of Achilles (*Il.*, 16, 149-151):

"Xanthos and Balios, twain as a whirlwind rapid in running,  
Horses Podarge the harpy aforetime bore to the West Wind,  
Zephyros, while in a meadow she grazed by flood of the Ocean."

But no such imagination is for an instant permissible in the case in hand: no effort of the human understanding can assign any meaning to such a theological dogma.

Of course, this does not imply that the authors of the sentence, or at least of the accounts in Luke and Matthew, did not mean something definite enough when they first used such expressions (which assumed their oldest extant forms only very gradually, so that the primitive phrases are lost to us entirely). They were not formulating dogmas but writing poems, clothing spiritual truths in bodily falsehoods (as Origen would say). In attempting to give a sensible form to the notion of the Jesus-God as the "Son-of-God," they seized upon the methods and expressions lying at hand in the mythopoetic creations of the pagan world around them, and each embodied his own fancy in a story more or less after the Homeric or some other model; and this they did with perfect freedom and in utter disregard of the patent fact that their stories (in Matthew and Luke) contradicted each other at numerous and vital points, in fact are directly contrary in all the human-historic features, and most naturally, since both are pure and independent inventions, without the shadow of basis in fact. As such, they are perfectly intelligible and even beautiful; as historic narratives they are utterly inconceivable. It is not too much to say that there is no man in Christendom, whether Pope or Patriarch, whether Cardinal or Primate, whether clerk or layman, that associates any definite notion with these words, no matter how often

or how vehemently he may repeat them; or if he does combine with them any definable notion, that notion is arbitrary and worthless, if not ridiculous. Worthless, for there is no worthy use of any kind to which such a notion could be put; it is of no avail to any rational being.

It is no new thing, nor peculiar to Christians, to profess words without ideas. The illustrious Maimonides (1135-1204) opens the fiftieth chapter of his *Guide of the Erring* with the reminder that "by 'faith' we understand not merely what is uttered with the lips, but also what is apprehended by the soul," and adds "you will find many ignorant persons professing articles of faith but connecting no idea with them." The faith of such a man is vain.

If any one thinks that the foregoing judgment upon these articles is too severe, and that there are deep thinkers who profess them intelligently and in all sincerity, the answer is that such philosophers can at best attach to them only some mystical meaning utterly foreign to the words themselves, and under the persuasion of necessity. But they might do the same thing to any senseless jumble of letters or other signs, as to *Abracadabra*, which one may wantonly understand to mean what one will. But such an arbitrary ascription will still not be the *meaning* of the signs in question; for *meaning* is not the wilful reaction of this or that mind merely to please itself, but the lawful, well-ordered, and regulated reaction of normal informed minds in general, in presence of the signs in question. Such being the case, the only way to give historic-biographic content to the articles in question is to fall back on the analogy of the saline solution; but surely no one would do this, and it would be hard to imagine a greater violence to the thoughts of this famous confession.<sup>4</sup>

(c) "Suffered under Pontius Pilate," (d) "Was cruci-

<sup>4</sup> One must not forget, in appraising such documents, that the sharp distinction between mind and matter is comparatively modern and was not drawn even by the acutest theologians among the ancients. The Targum Onkelos

fied, dead and buried." These words in the modern acception merely continue conceivably the biography already inconceivably begun. Now it is remarkable that of all these four items (a, b, c, d) not one comes from the core and original cast of the Gospel. It is well known and generally conceded that the "prehistory" of the Birth etc., the first two chapters in Matthew and also in Luke, are later fanciful prefixes to the earlier Gospel, which began with John's Preaching in the Wilderness. So too the "Sufferings of the Christ" (*τοῦ Χριστοῦ παθημάτων*, 1 Peter v. 1), the Crucifixion, etc., are later suffixes to the same Gospel, which did not take Jesus into Judea, as Harnack now admits bravely and honestly, even in face of the serious inference suggested.<sup>5</sup> Whence came the notion of the "Sufferings," this is not the place to inquire; but of the Crucifixion we may say with some confidence that it came from the phrase found in Heb. vi. 6, "crucifying to themselves the Son-of-God and putting (him) to open shame." Here the words seem to refer to nothing but the public rejection (by the Jews?) of the "doctrine about the Son-of-God," "the Logos" (doctrine), which is the only subject under discussion in the context (Heb. vi. 1). The word (of the AV) "afresh" is not in the Greek (as now admitted in his translation by Moffatt); the prefix *ἀν-* does not mean *again* but *up* (the setting-up of the cross), and besides in the original D-manuscript it was not present, but was afterward inserted in an impossible original position, at the end of a line. There is no allusion to any *re*-crucifixion, but

(second century A.D.) was marked by the most labored and persistent attempts to smooth down anthropomorphisms and all corporeal features in the Old Testament representation of Yahweh, and Maimonides devotes a large part of his *Guide* to the praise of Onkelos and to an elaborate refutation of the current doctrines of the corporeality of God. Words that for us have lost all meaning and reference might well have been used in the early days of our era.

<sup>5</sup> *The Sayings of Jesus*: "...the Passion and the narratives and discourses leading up to the Passion were completely wanting in Q," "whose horizon is as good as absolutely bounded by Galilee," pp. 170, 171. Notice his alarm at "this extraordinary fact from which we cannot escape," p. 233 n.

the open rejection of the "doctrine about the Christ" or about Jesus ( $\tauὰ περὶ τοῦ Ἰησοῦ$ , Acts xviii. 25) is called "crucifying the Son-of-God," about the same as "pillorying," exposing to public derision, as the following phrase explains, "putting to an open shame." This notion of "rejection" as "crucifixion," hardly original with the author of Hebrews, but used by him as familiar to his readers, would seem to have been taken up and expanded into the story of the Crucifixion as found appended to the Synoptic Gospels and inwoven still more elaborately into the Fourth.<sup>6</sup> Since such seems to have been the primitive sense of the "crucifixion," it might be legitimate for any one to profess faith in this article in this its only true and proper historic sense, which statement, however, is no advice to any one to do so. The further specifications, "dead and buried," are mere corollaries from "crucified" taken in its literal and personal but improper sense. One may indeed speak of a doctrine as being "dead and buried," but such a use is not to be recommended and does no justice to the intention of the Creed-makers.

(e) "He descended into hell." This remarkable item of faith is entirely foreign to the Gospel. It might indeed be regarded as an inference (necessary for the ancient) from the Death; since the shade or soul of the deceased descended straightway beneath the broad disk of the earth into the house of Hades (i. e., hell). But the Scripture warrant is found in 1 Peter iii. 19, "in which (spirit) also he went and preached unto the spirits in prison," etc., and *ibid.* iv. 6, "For unto this end was the Gospel preached even to the dead" (though here the original reference might have been to the heathen dead in idolatrous sin). Of course, there is no primitive Christianity in such a doctrine, nor has it the least spiritual value for any intelligent

<sup>6</sup> Along with a number of others, the writer's memoir on "The Original Sense of the Crucifixion" is held back, awaiting the dawn of peace.

modern, though Dante could use it for high poetical purposes. It is rarely heard of in the speech of to-day; there are perhaps very few that ever think of it one way or another (though its content is not unthinkable), an alternative form is admitted for conscientious objectors, and little objection would perhaps be raised against him that would omit it altogether. Whether any meaning consistent with the non-historicity of the Jesus could be ascribed to such words, it seems idle to imagine. (See Note B, at close.)

(f) "The third day he rose from the dead." Here indeed we seem to touch the nerve of the whole matter. The Resurrection (*Anastasis*) on the third day is regarded on nearly all hands as the main pivot of the Christian faith and hope. And yet there are very many that shrink from understanding these words in their obvious sense. It is a hard task to believe that the body of the Crucified, after having lain from Friday eve till Saturday eve, or Sunday morn, truly dead in the grave of Joseph, was then resuscitated and delivered from the tomb and walked about on the earth alive for forty days. In the presence of this article the faithful man may indeed exclaim, "Lord, I believe; help thou mine unbelief." Of course, there have been many silly attempts to rationalize the resurrection story by imagining a case of suspended animation and premature interment; all such puerilities are entirely unworthy of notice. The notion of the *Anastasis* is one of the oldest and most important in proto-Christianity, but it did not at first mean *again-setting* (*re-surrection*) but *up-setting* i. e., *setting-up, establishing*), a most frequent sense of the Hebrew equivalent *qûm*, as Maimonides testifies (*Guide*, I, xii: "It is always in this sense that the verb is used in referring to the Almighty"). The earlier phrase "God hath raised (or set) up the Jesus" (like the kindred sentence, "David who was raised on high, the Messiah of the God of Jacob," 2 Sam. xxiii. 1) referred to the *establishment*

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of the Jesus as Deity, i. e., to the revelation of God himself as the Jesus, i. e., in the person or character of Jesus or Saviour (i. e., from sin, the one supreme sin of idolatry). So the doctrine of the Establishment (*Anastasis*) is equivalent to the universal proclamation of God as the One God of all men, i. e., to Christian monotheism, and hence is fundamental and vital in primitive Christianity. It has nothing to do with the human-historic Jesus and hence is unaffected by the vanishing of this latter. To believe in the *Anastasis* is simply to recognize the historic fact that under the name, in the person, of the Jesus (the Saviour from the sin of idolatry) the One God was preached in the first centuries of our era with astonishing and complete success, a belief which the radical would be the first to profess. The modern doctrine of the Resurrection, or resuscitation of the body of the Crucified, is a stumbling-block to the conscientious and is without religious or any other merit.<sup>7</sup>

(g) "He ascended into heaven, (h) And sitteth on the right hand of God the Father Almighty." These articles declare the Ascension and Enthronement of the Jesus. It has long been familiar to critics that these were not really different from the Resurrection. They are only further and more explicit statements of the *Anastasis* or establishment or installation of the Saviour-God Jesus, i. e., the manifestation of God as the Saviour (of the world) from polytheism. Such was surely the original sense of the preaching at this point. What has been said on the resurrection article applies with full force to the ascension and enthronement articles and need not be repeated.

(i) "From thence he shall come to judge the quick and the dead." In the Old Testament the wrath of God is directed peculiarly if not solely against the sin of idolatry.

<sup>7</sup> This matter is set forth sufficiently in the essay on "Anastasis" in *Der vorchristliche Jesus*. For significant appropriations, see W. Bousset's work *Kyrios Christos*.

In the primitive Christian conception the universal judgment could not rest upon any other basis than that of knowing or not knowing God. Says the angel with the "eternal Gospel," "For the hour of his judgment is come." Judgment (*κρίσις*) here is strictly *separation*, not of the good from the bad, which is impossible since all are partly good and partly bad, but of *believers* in the One God from *unbelievers*. Of course, it must be Jesus, the universal Saviour-God, that acts as supreme Judge in such assize, since it was He that was preached unto all, to be accepted or rejected. Such was the primitive sense of this final Judgment, a process hardly to be discriminated from the Gospel-preaching of salvation through *faith*. Of course, we all know that the "Coming" was originally the Parousy, the presence of the Saviour-God Jesus in the preaching of the Apostles. Later it was parodied into the flesh-and-blood entry of a human-historic Jesus into the world, and a Second Coming or Parousy was engrafted upon or split off from the Parousy proper, whereof the early preaching knew nothing. The radical accepts and believes in the final Judgment of the Jesus-God in the primitive sense, as an historic process, the only sense that can command the assent of fair-minded intelligent men. The radical criticism does not vitiate but merely clarifies, beautifies, and verifies the only rational faith in this article.

Passing now to the third division we read:

III (a) "I believe in the Holy Ghost; (b) the Holy Catholic Church; (c) the communion of saints; (d) the forgiveness of sins; (e) the resurrection of the body; (f) and the life everlasting." Concerning this it is not necessary to expend many words. The items are interesting and important, some of them mysterious and awe-inspiring, but no discussion thereof would be in place here, for it is obvious that they have nothing to do with the human-historic Jesus. Interpret them as you will, believe them or

disbelieve them as may seem proper, all this you may do independently of your attitude on the Jesus-question. The present writer finds his own thoroughgoing spiritual interpretation of the universe not in the least balked but rather furthered by his radical criticism; if a Holy Jewish Church has rested for ages securely on a particularistic monotheism, much more might a Holy Catholic Church rest securely on a monotheism universal; communion is the slogan of faiths that make little or no pretense to be Christian; forgiveness of sins is not peculiar to any age or to any religion; the life everlasting has been the dream and the faith of the small and the great, the wise and the simple in every time and every clime;<sup>8</sup> nor is it unfamiliar, the notion of the resurrection of the body, at least as set forth in 1 Cor. xv, where it is a 'spiritual,' as distinguished from the present 'psychical,' body that the Apostle declares shall be provided. In any case, perhaps no one nowadays would have the logical hardihood to rest the dogma of the resurrection of the body on the dogma of the human-historic Jesus. This latter is quite unavailable as such a basis in the minds of the liberals, for not one of them believes that the mere man Jesus actually rose after actual death from the tomb of Joseph; they "rationalize" the whole story this way or that. It is equally unavailable for the conservatives, for they hold that the Jesus was not mere man, but "very Man and very God," and the resurrection of such a God-Man implies nothing at all about the resurrection of a mere man, even as the locomotion of an animal does not imply the locomotion of a plant. Whoever then believes in the resurrection of the body, must do so on grounds unconnected with the dogma of the human-personal-historical character of the Jesus.

We have now reached this conclusion: The so-called

<sup>8</sup> We all know that the doctrine of the immortality of the soul and of the future life is *not* distinctively Christian; its classic expression is found in the *Phaedo* of Plato.

Apostles' Creed falls into three parts: the first of these falls into two articles, of which the first proclaims a pure monotheism acceptable to Jew, proselyte, and enlightened pagan, while the second proclaims the distinctive Christian addition, but with no suggestion of a human-historical Jesus. Precisely here in all probability the earliest Christian creed had its end. To so much and no more the Book of Acts bears witness and the New Testament in general. When the Philippian jailer fell trembling at the feet of Paul and crying, "What must I do to be saved?" the answer was, "Believe on the Lord Jesus, and thou shalt be saved, thou and thy house," his simple conversion from polytheism was enough for *all*. Such was certainly the central idea of the new movement, which alone makes it intelligible. It is quite impossible to think of the Apostles' converts as professing anything like the Apostles' Creed (of seventeen articles!). All the evidence in the case, as well as common sense, indicates that the primitive creed was at most of two articles. Such indeed has long been the contention of the Disciples, Reformers, "Campbellites," *Christians* (as they call themselves), one of the most militant and crescent of the newer denominations, who in their earlier days displayed a keen insight along with extraordinary logical vigor, but of late would seem to suffer from arrested development, perhaps owing to lack of nurture of higher knowledge.

The second section of this creed is obviously a much later elaboration. It attaches itself by the relative "who" to the preceding and presents in quasi-historic *caricature* the symbolic-poetic investiture of the early teaching, along with certain accretions necessary to complete the historization. The whole section is a corruption of the second and third centuries and is without any authority for the enlightened Christian conscience, but it has blurred some beautiful features of the primitive "new doctrine."

The third section is likewise late, but is mainly ecclesiastic and practical, without special or necessary reference to the doctrine of the Jesus whether human or divine.

Dismissing the Creed with this cursory examination, we pass to the more general question, What must be the effect, on moral, spiritual, extra-creedal Christianity, of the radical criticism in rejecting a human-historical Christ? The answer does not seem to be especially difficult. *Ethics*, it seems, would not be affected at all. Its demands rest upon no particular authority but in the nature of the spiritual universe, upon the common universal conscience as it grows, develops, clarifies, fortifies, and sanctifies itself in the process of the eons. The wisdom of Egypt and of India, of Athens and of Jerusalem is not a fetter laid upon the soul; nay "the words of the wise are as goads" that spur us onward, they are stimulus and inspiration, they are rungs in the Jacob's ladder of ascent to heaven. The starry sentences of the New Testament shine undimmed by the fact that we do not know who was the author of a single one. The case is the same with Isaiah and with Homer, with Moses and with Plato, with Euclid and with Apollonius. No one knows the genesis of any particular form of thought or expression. The most beautiful hexameter was perhaps an ancient saw. It is the catholicity, the universal appeal, that makes canonical and authoritative. No human-historic Jesus could give any binding force to any maxim or doctrine. This will perhaps be generally conceded. A *divine* Jesus might indeed do so, but that question is not now before us. As a matter of fact, there is nothing past-human in the New Testament. Neither in theory nor in practice are there any peculiarly Christian virtues, though certain virtues, the gentler, more passive, more feminine, have received peculiar stress both relatively and absolutely, in the theory and the practice of Christians.

The truth is that the Christian propaganda was in first line religious rather than ethical, though of course the ethical element was by no means neglected. By their fruits ye shall know them. Outsiders must judge of such a movement mainly by its consequences in conduct, and the high moral standard of the proto-Christians, with uncommon accent<sup>9</sup> on the tenderer graces of character, undoubtedly contributed immensely to the success of their crusade. Nevertheless, their ethical theory was certainly defective at certain points, and under the complex conditions of modern life it is often vain to appeal to the New Testament, whether for inspiration or for guidance, though such appeal is continually made, and texts are distorted beyond recognition, not in the exposition, but in the imposition, of meanings. Such as it is, however, the New Testament and Christian morality loses nothing whatever at the disappearance of the human-historic Jesus.

But some one will say, "Alas! the example, the matchless model, the inspiration of a perfect life! All this is ruthlessly snatched away by the radical criticism, and men are left helpless in their misery, like sheep without a shepherd, scattered upon the mountains." Such pathos is very cheap and may perhaps be made effective with certain classes, but it is also very ludicrous and can lay little claim to common honesty. They who enter such pleadings do small credit to the workings of the model and maxims, and

<sup>9</sup> In every case this accent is historically intelligible. The most important, the stress laid upon *chastity*, finds its complete and most interesting explanation in two facts closely related: (1) In the Old Testament and hence in early Christian usage, idolatry, regarded as unfaith toward God, was constantly and regularly symbolized and denounced as adultery or harlotry; indeed, the Babylon of Revelation, the Woman sitting upon many waters, the mother of harlots and of all abominations on earth, who had drenched all nations with her passion's wine of wrath, is obviously nothing else than idolatry or polytheism as embodied in the Roman Empire. (2) The rites of idolatrous worship were so often grossly sexual that idolatry and impurity were regarded as well-nigh one, in thought and in speech they were hardly distinguished, to renounce the one was to renounce the other.—Thus the peculiar stress in question affords convincing proof of the central thesis of radical criticism: that proto-Christianity was a protest against polytheism.

none at all to their own sincerity. For they must know that all such pretense is hollow. It is no disrespect to the Gospel to say that the life of its hero cannot be a model for any man, for it is altogether too scanty and colorless, too devoid of incident and motive, too wholly unlike any life that is now possible among men; besides it was marked by the miraculous at every turn and accordingly is entirely unfit to serve as an example. A striking illustration is afforded in the fact that no man can say with any plausibility what would be the attitude of the Jesus in the present world war, were He dwelling on the earth. Attempts have been repeatedly made to conjecture that attitude, but all such have failed, and a distinguished minister on passing them in review regretfully admits that it is idle to hope we shall ever know what Jesus would have done. The like may be said of nearly the whole casuistry of modern life, which in all its toss and turmoil lies practically wholly beyond the range of both precedent and precept of the Jesus. Nay more, this is not only true in large matters, but also in small. Such glittering generalities as the Golden Rule, noble and holy as it is, avail but very little. There is an implied adverb of supreme *practical* importance. We should do unto others only what we would *justly* have them do to us. But what is justice? On this the Rule sheds no light, and this is the crucial point. Civilization is itself in great measure the quest for justice to all, and how miserably the quest has failed even among the most Christian people is a matter of common knowledge.—Still further evidence, if any were needed, of the inadequacy of the Gospel for modern ethical life is found in the fact that the best works on ethics but rarely cite the Scripture.

But some one will still protest that the perfect life of Jesus is an indispensable inspiration to all forms of highest endeavor. But this is certainly an illusion. Of this "life" we know scarcely anything at all, of not one single incident

are we sure. And even if taken wholly uncritically, at its face-value in the Gospels, it is nevertheless singularly devoid of inspiring situations or precedents. Certainly the early Christian times stood much nearer to this "life" in every particular than we of to-day, and yet it seems to have served them in hardly any measure as inspiration or example. Such use of it in the early Christian literature is vanishingly small. The idea of this "life" as a model is comparatively modern, at least in the stress that is laid upon it. This massive fact is unmistakable in its indication. Descending to particulars, we seek vainly in the alleged human life for incidents to enkindle admiration or supply inspiration. What act of kindness? of generosity? of patience? of self-sacrifice? of warm-heartedness? of friendship even? what deed of daring? of high-heartedness? of self-forgetfulness? of self-denial? The miracles cannot count in this connection. They are all expressions of divine authority, wisdom, and power, nor are they intended to express any human moral quality whatever. Will any sane man pretend to discover an ethical element in stilling a tempest, or multiplying loaves and fishes, or cursing a fig-tree, or cleansing a leper by a touch, or recalling Lazarus to life by a word? A child may perceive that these are all eloquent symbols of religious truths, but even if accepted as biographic facts, what is there in them for us to imitate?<sup>10</sup> Of course, all this constitutes no criticism upon the Jesus or the Gospel; for these documents were not written for biographies, but have been violently perverted into biographic service; they were not intended to depict the career of a model man, but of a conquering religious cult. The value of example and its inspiration can hardly be overestimated, even if we hesitate to admit that "biography is after all the only literature worth reading." But all

<sup>10</sup> In *Ecce Deus* (pp. 77-175) and in "Polyxena Christiana" (*The Monist*, April, 1916) this contention is confirmed beyond dispute.

history positively teems with incidents that splendidly illustrate every virtue of human character and glorify humanity itself with undying illumination, as Athena enkindled Achilles at the trench. The lines of Homer will bear citation (*Il.*, 18, 203-206) :

"Thereat rose up Achilles, belovèd of Zeus, and Athena  
Over his stalwart shoulders her tasseled and terrible aegis  
Flung, and the glorious goddess his head with a diadem golden  
Circled, of cloud, yea, kindled him all with a flaming effulgence."

The present world-war is lit up in terrific radiance with innumerable such records of heroism, devotion, self-abnegation and magnanimity, with which there is in the New Testament nothing to compare, which the generations to come will read with weeping and with rapture, with tears of exultation, of gratitude, and of joy.

Lastly, some one may think that in some mysterious way the human-historic Jesus may illuminate history, may furnish it with interpretation, and outfit it with a philosophy. Such an expectation were indeed not at all unreasonable, but altogether natural, and the fact that it has been totally disappointed is a clear indication of the unreality of its basis. It is notorious that all attempts to construct a distinctively Christian philosophy of history have issued in dismal failure; not one has given satisfaction to any but its author, if indeed even to him. This may be said of the earliest and no less of the very latest, by Prince Troubetzkoy, on "The Meaning of Life, and the World, Revealed on the Cross" (*Hibbert Journal*, April, 1918), which harks back to Tertullian and yields to none in triviality.

In conclusion, some one may still ask, "What then shall we preach? Monotheism is long since a dead issue. What is to take its place? Has it any logical continuation or successor?" The answer is, *Yes, it has.* The natural prolongation, expansion, and development of monotheism

is monism. Not any arid philosophical or metaphysical dogma to set over against dualism, not any bare affirmation of oneness of the substance of all that is. So much, indeed; but we do not rest in the footsteps of Parmenides. The doctrine of the higher unity unfolds itself into the doctrine of the brotherhood of man, of liberty, equality, fraternity in the truest and noblest sense that can be given to such words. It blossoms into all the tenderer teachings of universal sympathy, benevolence, beneficence; it matures into the most practical fruits of social justice, of cooperation, of universal education, of mutual protection and helpfulness, of municipalization, nationalization, and internationalization along the paths not merely of luminous theory, but also of carefully chosen and cautiously guarded experiment. Such scientific-philosophic monism is indeed the necessary and indispensable deep-laid basis of rational democracy, of the League of Nations, of the Parliament of Man, the Federation of the World. We might go much further and find in it the only sure foundation of the individual hope and aspiration toward eternity.<sup>11</sup> But that would take us altogether too far afield. Enough that the sublime doctrine of the oneness of God issues and evolves into the still sublimer creed of the oneness of the world, it points toward the shining pathway that conducts the ages from the human individual consciousness toward the universal consciousness divine, the "one far off divine event To which the whole creation moves."

Here then is the natural and all-sufficient succession to the original proto-Christian proclamation of the One God of all men, without distinction of Jew or Greek, wise or unwise, bond or free. It will hardly be denied that it abounds in dignity, in majesty, and in inspiration, that it looks in the direction of the march of the centuries.—The Church itself has dimly felt that some such transformation was im-

<sup>11</sup> See the writer's "Mors Mortis" (*The Monist*, July, 1918).

pending, was coming upon it from afar, resistless and unavoidable as the tidal wave of the ocean. Hence the extraordinary stress that it lays of late upon "social service" in all its forms, hence such a work as the recent one of Rauschenbusch upon a *Theology for the Social Gospel*. Undoubtedly the Church *might* make itself an agency of untold good, and *might* move humanity forward on this path with incalculable impetus. But alas! the "vested interests" insist on going forth, into the battle of the twentieth century, clad in the armor of the Dark Ages, of fifteen hundred years ago. Entirely misunderstanding the New Testament and the early Christian movement, the Church in all its endless divisions persists in binding upon the heart and mind of all its children an insupportable burden of crude irrationalism, of crass historic literalism, and often even of the blindest superstition, "a yoke that neither our fathers nor we were able to bear." It is this fact that makes the sight of modern Christianity the saddest that the sun has ever shone upon: the fair form of the elder faith completely overgrown with a hideous excrescence of senseless and impossible dogmas. The single nerve, root, and sinew of this prodigious tumor is the tenet of the human-historic Jesus. When this is cut through and through, the whole unsightly mass falls forever away, the mind of man is once again free, it leaps up from the dust and mire unto its own towering height and rejoices as a strong man to run a race. Such is the radical surgery of the new criticism, and such is the healed and enfranchised human spirit that remains.

WILLIAM BENJAMIN SMITH.

NEW ORLEANS, July 29, 1918.

#### NOTES.

- A. The appointment and consecration of Dr. Henson to the See of Hereford, despite a certain uncertainty "of his sincere and

positive belief in the doctrines named (i. e., the Miracle of the Virgin Birth of our Lord and the Miracle of His Bodily Resurrection on the third day)," have provoked some more or less excited discussion, even the best of which, as that by Kirsopp Lake, Wm. Sanday, Alfred Fawkes, the Bishop of Oxford, and the 162 protesting "Priests of the Diocese of London," it seems hard to read without a feeling of deep depression. Especially disheartening is the defense of Dr. Henson by his "Honorary Chaplain," which commends the Archbishop's "tact" "in a difficult situation" (*Hibbert Journal*, Oct., 1918, p. 85). Dr. Henson was "indeed astonished that any candid reader" of his published works could doubt that "when you repeat the words of the Creed you do so *ex animo*." But we do not learn the secret of the Latin phrase. Professor Lake seemed to think it meant *e mente auctoris*, but Fawkes assures us he "entirely mistakes." Perhaps *e mente lectoris* were better; the *reader* may well be *out of his mind* when he "repeats the words of the Creed." Dr. Henson has gained his see; but what shall it profit a man....?

The Bishop of Oxford thinks "The substance of the spiritual body will surely be, we suppose, as much more fine and delicate than our present body as the ether is more fine and delicate than common matter" (*The Creed of the Christian*, p. 105). If "ether is more fine and delicate than common matter," this does not mean that it is superior and fitter for a "spiritual body" (the distinction in 1 Cor. xv. 44 is between the present "body for soul" and the future "body for spirit"), but only that it is more rudimentary, less highly organized, and hence less fitted,—even as hydrogen or helium is "more fine and delicate" and hence less fitted than the "common matter" of neurones. The "ghosts," "photographed twice consecutively" by Schrenck-Notzing and others, were surely "fine and delicate" enough, yet few would prefer them as bodies.

However, there is one signal of hope: Professor Sanday apparently rejects the "literal" sense of the Creed; he doubts "if 'figurative' is the best word that we can use"; he "would submit that 'symbolical' would be a better term" (*Hibbert Journal*, Oct., 1918, p. 81). Seven times, even seventy times seven, men have "looked toward the sea," toward Britain; at last "ariseth a cloud . . . as small as a man's hand." But big with promise. If the Creed must be understood as "symbolical," so also the Gospels,

which it professes to formulate,—and the whole radical criticism comes at length into its own.

B (see p. 18). The preaching “to the imprisoned spirits” is fully and sufficiently set forth in the *Book of Enoch* (xii-xvi), where Enoch, the “Scribe of Righteousness,” is sent by the “Lord of Sublimity” to preach to the “watchers of heaven” (who were “holy and ever-living spirits,” but are now bound “in fetters” “for all generations”), that they “shall never find peace,” since, though “sons of heaven,” they had sinned with “women,” “the daughters of men” (Gen. vi. 2, 4). It seems certain that the reference in 1 Peter iii. 19 is to this interesting mission of Enoch, whose name appears to have fallen out of the text through a very common scribal error. The Greek now reads: ΕΝΩΚΑΙ, and the ΚΑΙ was probably shortened to Κ', so that the full text would have read: ΕΝΩΚ'ΕΝΩΧ, and the second half, mistaken for a repetition of the first, was wittingly or unwittingly omitted in transcribing. Whether or no this acute suggestion by J. Rendel Harris be exactly correct, there can hardly be any doubt that he who “preached to the spirits in prison” was Enoch, and *not* the Jesus; and accordingly Moffatt now has the courage to translate: “It was in the Spirit that Enoch also went and preached” etc. And so, thanks to the erring vision of an unknown scribe, this romantic fancy of an unknown seer, the Verne or Wells of two thousand years ago, has encysted itself firmly in the Creed of Christendom!

W. B. S.

## THE PHILOSOPHY OF LOGICAL ATOMISM.

### III. ATOMIC AND MOLECULAR PROPOSITIONS.

I DID not quite finish last time the syllabus that I intended for Lecture II, so I must first do that.

I had been speaking at the end of my last lecture on the subject of the self-subsistence of particulars, how each particular has its being independently of any other and does not depend upon anything else for the logical possibility of its existence. I compared particulars with the old conception of substance, that is to say, they have the quality of self-subsistence that used to belong to substance, but not the quality of persistence through time. A particular, as a rule, is apt to last for a very short time indeed, not an instant but a very short time. In that respect particulars differ from the old substances but in their logical position they do not. There is, as you know, a logical theory which is quite opposed to that view, a logical theory according to which, if you really understood any one thing, you would understand everything. I think that rests upon a certain confusion of ideas. When you have acquaintance with a particular, you understand that particular itself quite fully, independently of the fact that there are a great many propositions about it that you do not know, but propositions concerning the particular are not necessary to be known in order that you may know what the particular itself is. It is rather the other way round. In order to understand a proposition in which the name of a particular occurs, you

must already be acquainted with that particular. The acquaintance with the simpler is presupposed in the understanding of the more complex, but the logic that I should wish to combat maintains that in order thoroughly to know any one thing, you must know all its relations and all its qualities, all the propositions in fact in which that thing is mentioned; and you deduce of course from that that the world is an interdependent whole. It is on a basis of that sort that the logic of monism develops. Generally one supports this theory by talking about the "nature" of a thing, assuming that a thing has something which you call its "nature" which is generally elaborately confounded and distinguished from the thing, so that you can get a comfortable see-saw which enables you to deduce whichever results suit the moment. The "nature" of the thing would come to mean all the true propositions in which the thing is mentioned. Of course it is clear that since everything has relations to everything else, you cannot know all the facts of which a thing is a constituent without having some knowledge of everything in the universe. When you realize that what one calls "knowing a particular" merely means acquaintance with that particular and is presupposed in the understanding of any proposition in which that particular is mentioned, I think you also realize that you cannot take the view that the understanding of the name of the particular presupposes knowledge of all the propositions concerning that particular.

I should like to say about understanding, that that phrase is often used mistakenly. People speak of "understanding the universe" and so on. But, of course, the only thing you can really understand (in the strict sense of the word) is a symbol, and to understand a symbol is to know what it stands for.

I pass on from particulars to predicates and relations and what we mean by understanding the words that we use

for predicates and relations. A very great deal of what I am saying in this course of lectures consists of ideas which I derived from my friend Wittgenstein. But I have had no opportunity of knowing how far his ideas have changed since August 1914, nor whether he is alive or dead, so I cannot make any one but myself responsible for them.

Understanding a predicate is quite a different thing from understanding a name. By a predicate, as you know, I mean the word that is used to designate a quality such as red, white, square, round, and the understanding of a word like that involves a different kind of act of mind from that which is involved in understanding a name. To understand a name you must be acquainted with the particular of which it is a name, and you must know that it is the name of that particular. You do not, that is to say, have any suggestion of the form of a proposition, whereas in understanding a predicate you do. To understand "red," for instance, is to understand what is meant by saying that a thing is red. You have to bring in the form of a proposition. You do not have to know, concerning any particular "this," that "This is red" but you have to know what is the meaning of saying that anything is red. You have to understand what one would call "being red." The importance of that is in connection with the theory of types, which I shall come to later on. It is in the fact that a predicate can never occur except as a predicate. When it seems to occur as a subject, the phrase wants amplifying and explaining, unless, of course, you are talking about the word itself. You may say "Red' is a predicate," but then you must have "red" in inverted commas because you are talking about the word "red." When you understand "red" it means that you understand propositions of the form that " $x$  is red." So that the understanding of a predicate is something a little more complicated than the understanding

of a name, just because of that. Exactly the same applies to relations, and in fact all those things that are not particulars. Take, e. g., "before" in " $x$  is before  $y$ ": you understand "before" when you understand what that would mean if  $x$  and  $y$  were given. I do not mean you know whether it is true, but you understand the proposition. Here again the same thing applies. A relation can never occur except as a relation, never as a subject. You will always have to put in hypothetical terms, if not real ones, such as "If I say that  $x$  is before  $y$ , I assert a relation between  $x$  and  $y$ ." It is in this way that you will have to expand such a statement as "'Before' is a relation" in order to get its meaning.

The different sorts of words, in fact, have different sorts of uses and must be kept always to the right use and not to the wrong use, and it is fallacies arising from putting symbols to wrong uses that lead to the contradictions concerned with types.

There is just one more point before I leave the subjects I meant to have dealt with last time, and that is a point which came up in discussion at the conclusion of the last lecture, namely, that if you like you can get a formal reduction of (say) monadic relations to dyadic, or of dyadic to triadic, or of all the relations below a certain order to all above that order, but the converse deduction is not possible. Suppose one takes, for example, "red." One says, "This is red," "That is red," and so forth. Now, if any one is of opinion that there is reason to try to get on without subject-predicate propositions, all that is necessary is to take some standard red thing and have a relation which one might call "color-likeness," sameness of color, which would be a direct relation, not consisting in having a certain color. You can then define the things which are red, as all the things that have color-likeness to this standard thing. That is practically the treatment that Berkeley and Hume recom-

mended, except that they did not recognize that they were reducing qualities to relations, but thought they were getting rid of "abstract ideas" altogether. You can perfectly well do in that way a formal reduction of predicates to relations. There is no objection to that either empirically or logically. If you think it is worth while you can proceed in exactly the same way with dyadic relations, which you can reduce to triadic. Royce used to have a great affection for that process. For some reason he always liked triadic relations better than dyadic ones; he illustrated his preference in his contributions to mathematical logic and the principles of geometry.

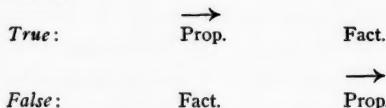
All that is possible. I do not myself see any particular point in doing it as soon as you have realized that it is possible. I see no particular reason to suppose that the simplest relations that occur in the world are (say) of order  $n$ , but there is no *a priori* reason against it. The converse reduction, on the other hand, is quite impossible except in certain special cases where the relation has some special properties. For example, dyadic relations can be reduced to sameness of predicate when they are symmetrical and transitive. Thus, e. g., the relation of color-likeness will have the property that if A has exact color-likeness with B and B with C, then A has exact color-likeness with C; and if A has it with B, B has it with A. But the case is otherwise with asymmetrical relations.

Take for an example "A is greater than B." It is obvious that "A is greater than B" does not consist in A and B having a common predicate, for if it did it would require that B should also be greater than A. It is also obvious that it does not consist merely in their having different predicates, because if A has a different predicate from B, B has a different predicate from A, so that in either case, whether of sameness or difference of predicate, you get a symmetrical relation. For instance, if A is of a different

color from B, B is of a different color from A. Therefore when you get symmetrical relations, you have relations which it is formally impossible to reduce to either sameness of predicate or difference of predicate, but when you come to asymmetrical relations there is no such possibility. This impossibility of reducing dyadic relations to sameness or difference of predicate is a matter of a good deal of importance in connection with traditional philosophy, because a great deal of traditional philosophy depends upon the assumption that every proposition really is of the subject-predicate form, and that is certainly not the case. That theory dominates a great part of traditional metaphysics and the old idea of substance and a good deal of the theory of the Absolute, so that that sort of logical outlook which had its imagination dominated by the theory that you could always express a proposition in a subject-predicate form has had a very great deal of influence upon traditional metaphysics.

That is the end of what I ought to have said last time, and I come on now to the proper topic of to-day's lecture, that is *molecular* propositions. I call them molecular propositions because they contain other propositions which you may call their atoms, and by molecular propositions I mean propositions having such words as "or," "if," "and," and so forth. If I say, "Either to-day is Tuesday, or we have all made a mistake in being here," that is the sort of proposition that I mean that is molecular. Or if I say, "If it rains, I shall bring my umbrella," that again is a molecular proposition because it contains the two parts "It rains" and "I shall bring my umbrella." If I say, "It did rain and I did bring my umbrella," that again is a molecular proposition. Or if I say, "The supposition of its raining is incompatible with the supposition of my not bringing my umbrella," that again is a molecular proposition. There are various propositions of that sort, which you can com-

plicate *ad infinitum*. They are built up out of propositions related by such words as "or," "if," "and," and so on. You remember that I defined an atomic proposition as one which contains a single verb. Now there are two different lines of complication in proceeding from these to more complex propositions. There is the line that I have just been talking about, where you proceed to molecular propositions, and there is another line which I shall come to in a later lecture, where you have not two related propositions, but one proposition containing two or more verbs. Examples are got from believing, wishing, and so forth. "I believe Socrates is mortal." You have there two verbs, "believe" and "is." Or "I wish I were immortal." Anything like that where you have a wish or a belief or a doubt involves two verbs. A lot of psychological attitudes involve two verbs, not, as it were, crystallized out, but two verbs within the one unitary proposition. But I am talking to-day about molecular propositions, and you will understand that you can make propositions with "or" and "and" and so forth, where the constituent propositions are not atomic, but for the moment we can confine ourselves to the case where the constituent propositions are atomic. When you take an atomic proposition, or one of these propositions like "believing," when you take any proposition of that sort, there is just one fact which is pointed to by the proposition, pointed to either truly or falsely. The essence of a proposition is that it can correspond in two ways with a fact, in what one may call the true way or the false way. You might illustrate it in a picture like this:



Supposing you have the proposition "Socrates is mortal," either there would be the fact that Socrates is mortal or

there would be the fact that Socrates is not mortal. In the one case it corresponds in a way that makes the proposition true, in the other case in a way that makes the proposition false. That is one way in which a proposition differs from a name.

There are, of course, two propositions corresponding to every fact, one true and one false. There are no false facts, so you cannot get one fact for every proposition but only for every pair of propositions. All that applies to atomic propositions. But when you take such a proposition as " $p$  or  $q$ ," "Socrates is mortal or Socrates is living still," there you will have two different facts involved in the truth or the falsehood of your proposition " $p$  or  $q$ ." There will be the fact that corresponds to  $p$  and there will be the fact that corresponds to  $q$ , and both of those facts are relevant in discovering the truth or falsehood of " $p$  or  $q$ ." I do not suppose there is in the world a single disjunctive fact corresponding to " $p$  or  $q$ ." It does not look plausible that in the actual objective world there are facts going about which you could describe as " $p$  or  $q$ ," but I would not lay too much stress on what strikes one as plausible: it is not a thing you can rely on altogether. For the present I do not think any difficulties will arise from the supposition that the truth or falsehood of this proposition " $p$  or  $q$ " does not depend upon a single objective fact which is disjunctive but depends on the two facts one of which corresponds to  $p$  and the other to  $q$ :  $p$  will have a fact corresponding to it and  $q$  will have a fact corresponding to it. That is to say, the truth or falsehood of this proposition " $p$  or  $q$ " depends upon two facts and not upon one, as  $p$  does and as  $q$  does. Generally speaking, as regards these things that you make up out of two propositions, the whole of what is necessary in order to know their meaning is to know under what circumstances they are true, given

the truth or falsehood of  $p$  and the truth or falsehood of  $q$ . That is perfectly obvious. You have as a schema,

for " $p$  or  $q$ ," using "TT" for " $p$  and  $q$  both true"  
 "TF" for " $p$  true and  $q$  false," etc.,

TT	TF	FT	FF
T	T	T	F

where the bottom line states the truth or the falsehood of " $p$  or  $q$ ." You must not look about the real world for an object which you can call "or," and say, "Now, look at this. This is 'or.'" There is no such thing, and if you try to analyze " $p$  or  $q$ " in that way you will get into trouble. But the meaning of disjunction will be entirely explained by the above schema.

I call these things truth-functions of propositions, when the truth or falsehood of the molecular proposition depends only on the truth or falsehood of the propositions that enter into it. The same applies to " $p$  and  $q$ " and "if  $p$  then  $q$ " and " $p$  is incompatible with  $q$ ." When I say " $p$  is incompatible with  $q$ " I simply mean to say that they are not both true. I do not mean any more. Those sort of things are called truth-functions, and these molecular propositions that we are dealing with to-day are instances of truth-functions. If  $p$  is a proposition, the statement that "I believe  $p$ " does not depend for its truth or falsehood, simply upon the truth or falsehood of  $p$ , since I believe some but not all true propositions and some but not all false propositions.

I just want to give you a little talk about the way these truth-functions are built up. You can build up all these different sorts of truth-functions out of one source, namely " $p$  is incompatible with  $q$ ," meaning by that that they are not both true, that one at least of them is false.

We will denote " $p$  is incompatible with  $q$ " by  $p/q$ .

Take for instance  $p/p$ , i. e., " $p$  is incompatible with itself." In that case clearly  $p$  will be false, so that you can take " $p/p$ " as meaning " $p$  is false," i. e.,  $p/p = \text{not } p$ . The meaning of molecular propositions is entirely determined by their truth-schema and there is nothing more in it than that, so that when you have got two things of the same truth-schema you can identify them.

Suppose you want "if  $p$  then  $q$ ," that simply means that you cannot have  $p$  without having  $q$ , so that  $p$  is incompatible with the falsehood of  $q$ . Thus,

$$\text{"If } p \text{ then } q" = p/(q/q).$$

When you have that, it follows of course at once that if  $p$  is true,  $q$  is true, because you cannot have  $p$  true and  $q$  false.

Suppose you want " $p$  or  $q$ ," that means that the falsehood of  $p$  is incompatible with the falsehood of  $q$ . If  $p$  is false,  $q$  is not false, and *vice versa*. That will be

$$(p/p)/(q/q).$$

Suppose you want " $p$  and  $q$  are both true." That will mean that  $p$  is not incompatible with  $q$ . When  $p$  and  $q$  are both true, it is not the case that at least one of them is false. Thus,

$$\text{"}p \text{ and } q \text{ are both true"} = (p/q)/(p/q).$$

The whole of the logic of deduction is concerned simply with complications and developments of this idea. This idea of incompatibility was first shown to be sufficient for the purpose by Mr. Sheffer, and there was a good deal of work done subsequently by M. Nicod. It is a good deal simpler when it is done this way than when it is done in the way of *Principia Mathematica*, where there are two primitive ideas to start with, namely "or" and "not." Here you can get on with only a single premise for deduction.

I will not develop this subject further because it takes you right into mathematical logic.

I do not see any reason to suppose that there is a complexity in the facts corresponding to these molecular propositions, because, as I was saying, the correspondence of a molecular proposition with facts is of a different sort from the correspondence of an atomic proposition with a fact. There is one special point that has to be gone into in connection with this, that is the question: Are there negative facts? Are there such facts as you might call the fact that "Socrates is not alive"? I have assumed in all that I have said hitherto that there are negative facts, that for example if you say "Socrates is alive," there is corresponding to that proposition in the real world the fact that Socrates is not alive. One has a certain repugnance to negative facts, the same sort of feeling that makes you wish not to have a fact " $p$  or  $q$ " going about the world. You have a feeling that there are only positive facts, and that negative propositions have somehow or other got to be expressions of positive facts. When I was lecturing on this subject at Harvard I argued that there were negative facts, and it nearly produced a riot: the class would not hear of there being negative facts at all. I am still inclined to think that there are. However, one of the men to whom I was lecturing at Harvard, Mr. Demos, subsequently wrote an article in *Mind* to explain why there are no negative facts. It is in *Mind* for April 1917. I think he makes as good a case as can be made for the view that there are no negative facts. It is a difficult question. I really only ask that you should not dogmatize. I do not say positively that there are, but there may be.

There are certain things you can notice about negative propositions. Mr. Demos points out, first of all, that a negative proposition is not in any way dependent on a cognitive subject for its definition. To this I agree. Sup-

pose you say, when I say "Socrates is not alive," I am merely expressing disbelief in the proposition that Socrates is alive. You have got to find something or other in the real world to make this disbelief true, and the only question is what. That is his first point.

His second is that a negative proposition must not be taken at its face value. You cannot, he says, regard the statement "Socrates is not alive" as being an expression of a fact in the same sort of direct way in which "Socrates is human" would be an expression of a fact. His argument for that is solely that he cannot believe that there are negative facts in the world. He maintains that there cannot be in the real world such facts as "Socrates is not alive," taken, i. e., as simple facts, and that therefore you have got to find some explanation of negative propositions, some interpretation, and that they cannot be just as simple as positive propositions. I shall come back to that point, but on this I do not feel inclined to agree.

His third point I do not entirely agree with: that when the word "not" occurs, it cannot be taken as a qualification of the predicate. For instance, if you say that "This is not red," you might attempt to say that "not-red" is a predicate, but that of course won't do; in the first place because a great many propositions are not expressions of predicates; in the second place because the word "not" applies to the whole proposition. The proper expression would be "not: this is red"; the "not" applies to the whole proposition "this is red," and of course in many cases you can see that quite clearly. If you take a case I took in discussing descriptions: "The present king of France is not bald." If you take "not-bald" as a predicate, that would have to be judged false on the ground that there is not a present king of France. But it is clear that the proposition "The present king of France is bald" is a false proposition, and therefore the negative of that will have to be a true

proposition, and that could not be the case if you take "not-bald" as a predicate, so that in all cases where a "not" comes in, the "not" has to be taken to apply to the whole proposition. "Not- $p$ " is the proper formula.

We have come now to the question, how are we really to interpret "not- $p$ ," and the suggestion offered by Mr. Demos is that when we assert "not- $p$ " we are really asserting that there is some proposition  $q$  which is true and is incompatible with  $p$  ("an opposite of  $p$ " is his phrase, but I think the meaning is the same). That is his suggested definition:

"not- $p$ " means "There is a proposition  $q$  which is true and is incompatible with  $p$ ."

As, e. g., if I say "This chalk is not red," I shall be meaning to assert that there is some proposition, which in this case would be the proposition "This chalk is white," which is inconsistent with the proposition "It is red," and that you use these general negative forms because you do not happen to know what the actual proposition is that is true and is incompatible with  $p$ . Or, of course, you may possibly know what the actual proposition is, but you may be more interested in the fact that  $p$  is false than you are in the particular example which makes it false. As, for instance, you might be anxious to prove that some one is a liar, and you might be very much interested in the falsehood of some proposition which he had asserted. You might also be more interested in the general proposition than in the particular case, so that if some one had asserted that that chalk was red, you might be more interested in the fact that it was not red than in the fact that it was white.

I find it very difficult to believe that theory of falsehood. You will observe that in the first place there is this objection, that it makes incompatibility fundamental and an ob-

jective fact, which is not so very much simpler than allowing negative facts. You have got to have here "That  $p$  is incompatible with  $q$ " in order to reduce "not" to incompatibility, because this has got to be the corresponding fact. It is perfectly clear, whatever may be the interpretation of "not," that there is *some* interpretation which will give you a fact. If I say "There is not a hippopotamus in this room," it is quite clear there is some way of interpreting that statement according to which there is a corresponding fact, and the fact cannot be merely that every part of this room is filled up with something that is not a hippopotamus. You would come back to the necessity for some kind or other of fact of the sort that we have been trying to avoid. We have been trying to avoid both negative facts and molecular facts, and all that this succeeds in doing is to substitute molecular facts for negative facts, and I do not consider that that is very successful as a means of avoiding paradox, especially when you consider this, that even if incompatibility is to be taken as a sort of fundamental expression of fact, incompatibility is not between facts but between propositions. If I say " $p$  is incompatible with  $q$ ," one at least of  $p$  and  $q$  has got to be false. It is clear that no two *facts* are incompatible. The incompatibility holds between the propositions, between the  $p$  and the  $q$ , and therefore if you are going to take incompatibility as a fundamental fact, you have got, in explaining negatives, to take as your fundamental fact something involving propositions as opposed to facts. It is quite clear that propositions are not what you might call "real." If you were making an inventory of the world, propositions would not come in. Facts would, beliefs, wishes, wills would, but propositions would not. They do not have being independently, so that this incompatibility of propositions taken as an ultimate fact of the real world will want a great deal of treatment, a lot of dressing up before it will do. There-

fore as a simplification to avoid negative facts, I do not think it really is very successful. I think you will find that it is simpler to take negative facts as facts, to assume that "Socrates is not alive" is really an objective fact in the same sense in which "Socrates is human" is a fact. This theory of Mr. Demos's that I have been setting forth here is a development of the one one hits upon at once when one tries to get round negative facts, but for the reasons that I have given, I do not think it really answers to take things that way, and I think you will find that it is better to take negative facts as ultimate. Otherwise you will find it so difficult to say what it is that corresponds to a proposition. When, e. g., you have a false positive proposition, say "Socrates is alive," it is false because of a fact in the real world. A thing cannot be false except because of a fact, so that you find it extremely difficult to say what exactly happens when you make a positive assertion that is false, unless you are going to admit negative facts. I think all those questions are difficult and there are arguments always to be adduced both ways, but on the whole I do incline to believe that there are negative facts and that there are not disjunctive facts. But the denial of disjunctive facts leads to certain difficulties which we shall have to consider in connection with general propositions in a later lecture.

#### DISCUSSION.

..... Do you consider that the proposition "Socrates is dead" is a positive or a negative fact?

*Mr. Russell:* It is partly a negative fact. To say that a person is dead is complicated. It is two statements rolled into one: "Socrates was alive" and "Socrates is not alive."

..... Does putting the "not" into it give it a formal character of negative and vice versa?

*Mr. Russell:* No, I think you must go into the meaning of words.

..... I should have thought there was a great difference between saying that "Socrates is alive" and saying that "Socrates is not a living man." I think it is possible to have what one might call a negative existence and that things exist of which we cannot take cognizance. Socrates undoubtedly did live but he is no longer in the condition of living as a man.

*Mr. Russell:* I was not going into the question of existence after death but simply taking words in their every-day signification.

..... What is precisely your test as to whether you have got a positive or negative proposition before you?

*Mr. Russell:* There is no formal test.

..... If you had a formal test, would it not follow that you would know whether there were negative facts or not?

*Mr. Russell:* No, I think not. In the perfect logical language that I sketched in theory, it would always be obvious at once whether a proposition was positive or negative. But it would not bear upon how you are going to interpret negative propositions.

..... Would the existence of negative facts ever be anything more than a mere definition?

*Mr. Russell:* Yes, I think it would. It seems to me that the business of metaphysics is to describe the world, and it is in my opinion a real definite question whether in a complete description of the world you would have to mention negative facts or not.

..... How do you define a negative fact?

*Mr. Russell:* You could not give a general definition if it is right that negativeness is an ultimate.

#### IV. PROPOSITIONS AND FACTS WITH MORE THAN ONE VERB; BELIEFS, ETC.

You will remember that after speaking about atomic propositions I pointed out two more complicated forms of propositions which arise immediately on proceeding further than that: the first, which I call molecular propositions, which I dealt with last time, involving such words as "or," "and," "if," and the second involving two or more verbs such as believing, wishing, willing, and so forth.

In the case of molecular propositions it was not clear that we had to deal with any new form of fact, but only with a new form of proposition, i. e., if you have a disjunctive proposition such as " $p$  or  $q$ " it does not seem very plausible to say that there is in the world a disjunctive fact corresponding to " $p$  or  $q$ " but merely that there is a fact corresponding to  $p$  and a fact corresponding to  $q$ , and the disjunctive proposition derives its truth or falsehood from those two separate facts. Therefore in that case one was dealing only with a new form of proposition and not with a new form of fact. To-day we have to deal with a new form of fact.

I think one might describe philosophical logic, the philosophical portion of logic which is the portion that I am concerned with in these lectures since Christmas [1917], as an inventory, or if you like a more humble word, a "Zoo" containing all the different forms that facts may have. I should prefer to say "forms of facts" rather than "forms of propositions." To apply that to the case of molecular propositions which I dealt with last time, if one were pursuing this analysis of the forms of facts, it would be *belief in* a molecular proposition that one would deal with rather than the molecular proposition itself. In accordance with the sort of realistic bias that I should put into all study of metaphysics, I should always wish to be engaged in the investigation of some actual fact or set of facts, and it seems to me that that is so in logic just as much as it is in zoology. In logic you are concerned with the forms of facts, with getting hold of the different sorts of facts, different *logical* sorts of facts, that there are in the world. Now I want to point out to-day that the facts that occur when one believes or wishes or wills have a different logical form from the atomic facts containing a single verb which I dealt with in my second lecture. (There are, of course, a good many forms that facts may have,

a strictly infinite number, and I do not wish you to suppose that I pretend to deal with all of them.) Suppose you take any actual occurrence of a belief. I want you to understand that I am not talking about beliefs in the sort of way in which judgment is spoken of in theory of knowledge, in which you would say there is *the* judgment that two and two are four. I am talking of the actual occurrence of a belief in a particular person's mind at a particular moment, and discussing what sort of a fact that is. If I say "What day of the week is this?" and you say "Tuesday," there occurs in your mind at that moment the belief that this is Tuesday. The thing I want to deal with to-day is the question, What is the form of the fact which occurs when a person has a belief. Of course you see that the sort of obvious first notion that one would naturally arrive at would be that a belief is a relation to the proposition. "I believe the proposition *p*." "I believe that to-day is Tuesday." "I believe that two and two are four." Something like that. It seems on the face of it as if you had there a relation of the believing subject to a proposition. That view won't do for various reasons which I shall go into. But you have therefore got to have a theory of belief which is not exactly that. Take any sort of proposition, say "I believe Socrates is mortal." Suppose that that belief does actually occur. The statement that it occurs is a statement of fact. You have there two verbs. You may have more than two verbs, you may have any number greater than one. I may believe that Jones is of opinion that Socrates is mortal. There you have more than two verbs. You may have any number, but you cannot have less than two. You will perceive that it is not only the proposition that has the two verbs, but also the fact, which is expressed by the proposition, has two constituents corresponding to verbs. I shall call those constituents verbs

for the sake of shortness, as it is very difficult to find any word to describe all those objects which one denotes by verbs. Of course, that is strictly using the word "verb" in two different senses, but I do not think it can lead to any confusion if you understand that it is being so used. This fact (the belief) is one fact. It is not like what you had in molecular propositions where you had (say) " $p$  or  $q$ ." It is just one single fact that you have a belief. That is obvious from the fact that you can believe a falsehood. It is obvious from the fact of false belief that you cannot cut off one part: you cannot have

I believe/Socrates is mortal.

There are certain questions that arise about such facts, and the first that arises is, Are they undeniable facts or can you reduce them in some way to relations of other facts? Is it really necessary to suppose that there are irreducible facts, of which that sort of thing is a verbal expression? On that question until fairly lately I should certainly not have supposed that any doubt could arise. It had not really seemed to me until fairly lately that that was a debatable point. I still believe that there are facts of that form, but I see that it is a substantial question that needs to be discussed.

### 1. *Are beliefs, etc., irreducible facts?*

"Etc." covers understanding a proposition; it covers desiring, willing, any other attitude of that sort that you may think of that involves a proposition. It seems natural to say one believes a proposition and unnatural to say one desires a proposition, but as a matter of fact that is only a prejudice. What you believe and what you desire are of exactly the same nature. You may desire to get some sugar to-morrow and of course you may possibly believe that you will. I am not sure that the logical form is the

same in the case of will. I am inclined to think that the case of will is more analogous to that of perception, in going direct to facts, and excluding the possibility of falsehood. In any case desire and belief are of exactly the same form logically.

Pragmatists and some of the American realists, the school whom one calls neutral monists, deny altogether that there is such a phenomenon as belief in the sense I am dealing with. They do not deny it in words, they do not use the same sort of language that I am using, and that makes it difficult to compare their views with the views I am speaking about. One has really to translate what they say into language more or less analogous to ours before one can make out where the points of contact or difference are. If you take the works of James in his *Essays in Radical Empiricism* or Dewey in his *Essays in Experimental Logic* you will find that they are denying altogether that there is such a phenomenon as belief in the sense I am talking of. They use the word "believe" but they mean something different. You come to the view called "behaviorism," according to which you mean, if you say a person believes a thing, that he behaves in a certain fashion; and that hangs together with James's pragmatism. James and Dewey would say: when I believe a proposition, that means that I act in a certain fashion, that my behavior has certain characteristics, and my belief is a true one if the behavior leads to the desired result and is a false one if it does not. That, if it is true, makes their pragmatism a perfectly rational account of truth and falsehood, if you do accept their view that belief as an isolated phenomenon does not occur. That is therefore the first thing one has to consider. It would take me too far from logic to consider that subject as it deserves to be considered, because it is a subject belonging to psychology, and it is only rele-

vant to logic in this one way that it raises a doubt whether there are any facts having the logical form that I am speaking of. In the question of this logical form that involves two or more verbs you have a curious interlacing of logic with empirical studies, and of course that may occur elsewhere, in this way, that an empirical study gives you an example of a thing having a certain logical form, and you cannot really be sure that there are things having a given logical form except by finding an example, and the finding of an example is itself empirical. Therefore in that way empirical facts are relevant to logic at certain points. I think theoretically one might know that there were those forms without knowing any instance of them, but practically, situated as we are, that does not seem to occur. Practically, unless you can find an example of the form you won't know that there is that form. If I cannot find an example containing two or more verbs, you will not have reason to believe in the theory that such a form occurs.

When you read the works of people like James and Dewey on the subject of belief, one thing that strikes you at once is that the sort of thing they are thinking of as the object of belief is quite different from the sort of thing I am thinking of. They think of it always as a thing. They think you believe in God or Homer: you believe in an object. That is the picture they have in their minds. It is common enough, in common parlance, to talk that way, and they would say, the first crude approximation that they would suggest would be that you believe truly when there is such an object and that you believe falsely when there is not. I do not mean they would say that exactly, but that would be the crude view from which they would start. They do not seem to have grasped the fact that the objective side in belief is better expressed by a proposition than by a single word, and that, I think, has a great deal to do

with their whole outlook on the matter of what belief consists of. The object of belief in their view is generally, not relations between things, or things having qualities, or what not, but just single things which may or may not exist. That view seems to me radically and absolutely mistaken. In the first place there are a great many judgments you cannot possibly fit into that scheme, and in the second place it cannot possibly give any explanation to false beliefs, because when you believe that a thing exists and it does not exist, the thing is not there, it is nothing, and it cannot be the right analysis of a false belief to regard it as a relation to what is really nothing. This is an objection to supposing that belief consists simply in relation to the object. It is obvious that if you say "I believe in Homer" and there was no such person as Homer, your belief cannot be a relation to Homer, since there is no "Homer." Every fact that occurs in the world must be composed entirely of constituents that there are, and not of constituents that there are not. Therefore when you say "I believe in Homer" it cannot be the right analysis of the thing to put it like that. What the right analysis is I shall come on to in the theory of descriptions. I come back now to the theory of behaviorism which I spoke of a moment ago. Suppose, e. g., that you are said to believe that there is a train at 10.25. This means, we are told, that you start for the station at a certain time. When you reach the station you see it is 10.24 and you run. That behavior constitutes your belief that there is a train at that time. If you catch your train by running, your belief was true. If the train went at 10.23, you miss it, and your belief was false. That is the sort of thing that they would say constitutes belief. There is not a single state of mind which consists in contemplating this eternal verity, that the train starts at 10.25. They would apply that even to the most abstract things. I do not myself feel that that view of things is tenable.

It is a difficult one to refute because it goes very deep and one has the feeling that perhaps, if one thought it out long enough and became sufficiently aware of all its implications, one might find after all that it was a feasible view; but yet I do not *feel* it feasible. It hangs together, of course, with the theory of neutral monism, with the theory that the material constituting the mental is the same as the material constituting the physical, just like the Post Office directory which gives you people arranged geographically and alphabetically. This whole theory hangs together with that. I do not mean necessarily that all the people that profess the one profess the other, but that the two do essentially belong together. If you are going to take that view, you have to explain away belief and desire, because things of that sort do seem to be mental phenomena. They do seem rather far removed from the sort of thing that happens in the physical world. Therefore people will set to work to explain away such things as belief, and reduce them to bodily behavior; and your belief in a certain proposition will consist in the behavior of your body. In the crudest terms that is what that view amounts to. It does enable you to get on very well without mind. Truth and falsehood in that case consist in the relation of your bodily behavior to a certain fact, the sort of distant fact which is the purpose of your behavior, as it were, and when your behavior is satisfactory in regard to that fact your belief is true, and when your behavior is unsatisfactory in regard to that fact your belief is false. The logical essence, in that view, will be a relation between two facts having the same sort of form as a causal relation, i. e., on the one hand there will be your bodily behavior which is one fact, and on the other hand the fact that the train starts at such and such a time, which is another fact, and out of a relation of those two the whole phenomenon is constituted. The thing you will get will be logically of the same form

as you have in cause, where you have "This fact causes that fact." It is quite a different logical form from the facts containing two verbs that I am talking of to-day.

I have naturally a bias in favor of the theory of neutral monism because it exemplifies Occam's razor. I always wish to get on in philosophy with the smallest possible apparatus, partly because it diminishes the risk of error, because it is not necessary to deny the entities you do not assert, and therefore you run less risk of error the fewer entities you assume. The other reason—perhaps a somewhat frivolous one—is that every diminution in the number of entities increases the amount of work for mathematical logic to do in building up things that look like the entities you used to assume. Therefore the whole theory of neutral monism is pleasing to me, but I do find so far very great difficulty in believing it. You will find a discussion of the whole question in some articles I wrote in *The Monist*, especially in July 1914, and in the two previous numbers also. I should really want to rewrite them rather because I think some of the arguments I used against neutral monism are not valid. I place most reliance on the argument about "emphatic particulars," "this," "I," all that class of words, that pick out certain particulars from the universe by their relation to oneself, and I think by the fact that they, or particulars related to them, are present to you at the moment of speaking. "This," of course, is what I call an "emphatic particular." It is simply a proper name for the present object of attention, a proper name, meaning nothing. It is ambiguous, because, of course, the object of attention is always changing from moment to moment and from person to person. I think it is extremely difficult, if you get rid of consciousness altogether, to explain what you mean by such a word as "this," what it is that makes the absence of impartiality. You would say that in a purely physical world there would be a complete impar-

tiality. All parts of time and all regions of space would seem equally emphatic. But what really happens is that we pick out certain facts, past and future and all that sort of thing; they all radiate out from "this," and I have not myself seen how one can deal with the notion of "this" on the basis of neutral monism. I do not lay that down dogmatically, only I do not see how it can be done. I shall assume for the rest of this lecture that there are such facts as beliefs and wishes and so forth. It would take me really the whole of my course to go into the question fully. Thus we come back to more purely logical questions from this excursion into psychology, for which I apologize.

2. *What is the status of p in "I believe p"?*

You cannot say that you believe *facts*, because your beliefs are sometimes wrong. You can say that you *perceive* facts, because perceiving is not liable to error. Wherever it is facts alone that are involved, error is impossible. Therefore you cannot say you believe facts. You have to say that you believe propositions. The awkwardness of that is that obviously propositions are nothing. Therefore that cannot be the true account of the matter. When I say "Obviously propositions are nothing" it is not perhaps quite obvious. Time was when I thought there were propositions, but it does not seem to me very plausible to say that in addition to facts there are also these curious shadowy things going about such as "That to-day is Wednesday" when in fact it is Tuesday. I cannot believe they go about the real world. It is more than one can manage to believe, and I do think no person with a vivid sense of reality can imagine it. One of the difficulties of the study of logic is that it is an exceedingly abstract study dealing with the most abstract things imaginable, and yet you cannot pursue it properly unless you have a vivid instinct as to what is real. You must have that instinct rather well developed in logic.

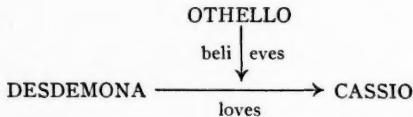
I think otherwise you will get into fantastic things. I think Meinong is rather deficient in just that instinct for reality. Meinong maintains that there is such an object as the round square only it does not exist, and it does not even subsist, but nevertheless there is such an object, and when you say "The round square is a fiction," he takes it that there is an object "the round square" and there is a predicate "fiction." No one with a sense of reality would so analyze that proposition. He would see that the proposition wants analyzing in such a way that you won't have to regard the round square as a constituent of that proposition. To suppose that in the actual world of nature there is a whole set of false propositions going about is to my mind monstrous. I cannot bring myself to suppose it. I cannot believe that they are there in the sense in which facts are there. There seems to me something about the fact that "To-day is Tuesday" on a different level of reality from the supposition "That to-day is Wednesday." When I speak of the proposition "That to-day is Wednesday" I do not mean the occurrence in future of a state of mind in which you think it is Wednesday, but I am talking about the theory that there is something quite logical, something not involving mind in any way; and such a thing as that I do not think you can take a false proposition to be. I think a false proposition must, wherever it occurs, be subject to analysis, be taken to pieces, pulled to bits, and shown to be simply separate pieces of one fact in which the false proposition has been analyzed away. I say that simply on the ground of what I should call an instinct of reality. I ought to say a word or two about "reality." It is a vague word, and most of its uses are improper. When I talk about reality as I am now doing, I can explain best what I mean by saying that I mean everything you would have to mention in a complete description of the world; that will convey to you what I mean. Now I do not think that false propositions would

have to be mentioned in a complete description of the world. False beliefs would, of course, false suppositions would, and desires for what does not come to pass, but not false propositions all alone, and therefore when you, as one says, believe a false proposition, that cannot be an accurate account of what occurs. It is not accurate to say "I believe the proposition  $p$ " and regard the occurrence as a twofold relation between me and  $p$ . The logical form is just the same whether you believe a false or a true proposition. Therefore in all cases you are not to regard belief as a two-term relation between yourself and a proposition, and you have to analyze up the proposition and treat your belief differently. Therefore the belief does not really contain a proposition as a constituent but only contains the constituents of the proposition as constituents. You cannot say when you believe, "What is it that you believe?" There is no answer to that question, i. e., there is not a single thing that you are believing. "I believe that to-day is Tuesday." You must not suppose that "That to-day is Tuesday" is a single object which I am believing. That would be an error. That is not the right way to analyze the occurrence, although that analysis is linguistically convenient, and one may keep it provided one knows that it is not the truth.

### *3. How shall we describe the logical form of a belief?*

I want to try to get an account of the way that a belief is made up. That is not an easy question at all. You cannot make what I should call a map-in-space of a belief. You can make a map of an atomic fact but not of a belief, for the simple reason that space-relations always are of the atomic sort or complications of the atomic sort. I will try to illustrate what I mean. The point is in connection with there being two verbs in the judgment and with the fact that both verbs have got to occur as verbs, because if a

thing is a verb it cannot occur otherwise than as a verb. Suppose I take "A believes that B loves C." "Othello believes that Desdemona loves Cassio." There you have a false belief. You have this odd state of affairs that the verb "loves" occurs in that proposition and seems to occur as relating Desdemona to Cassio whereas in fact it does not do so, but yet it does occur as a verb, it does occur in the sort of way that a verb should do. I mean that when A believes that B loves C, you have to have a verb in the place where "loves" occurs. You cannot put a substantive in its place. Therefore it is clear that the subordinate verb (i. e., the verb other than believing) is functioning as a verb, and seems to be relating two terms, but as a matter of fact does not when a judgment happens to be false. That is what constitutes the puzzle about the nature of belief. You will notice that wherever one gets to really close quarters with the theory of error one has the puzzle of how to deal with error without assuming the existence of the non-existent. I mean that every theory of error sooner or later wrecks itself by assuming the existence of the non-existent. As when I say "Desdemona loves Cassio," it seems as if you have a non-existent love between Desdemona and Cassio, but that is just as wrong as a non-existent unicorn. So you have to explain the whole theory of judgment in some other way. I come now to this question of a map. Suppose you try such a map as this:



This question of making a map is not so strange as you might suppose because it is part of the whole theory of symbolism. It is important to realize where and how a symbolism of that sort would be wrong: where and how

it is wrong is that in the symbol you have this relationship relating these two things and in the fact it doesn't really relate them. You cannot get in space any occurrence which is logically of the same form as belief. When I say "logically of the same form" I mean that one can be obtained from the other by replacing the constituents of the one by the new terms. If I say "Desdemona loves Cassio" that is of the same form as "A is to the right of B." Those are of the same form, and I say that nothing that occurs in space is of the same form as belief. I have got on here to a new sort of thing, a new beast for our Zoo, not another member of our former species but a new species. The discovery of this fact is due to Mr. Wittgenstein.

There is a great deal that is odd about belief from a logical point of view. One of the things that are odd is that you can believe propositions of all sorts of forms. I can believe that "This is white" and that "Two and two are four." They are quite different forms, yet one can believe both. The actual occurrence can hardly be of exactly the same logical form in those two cases because of the great difference in the forms of the propositions believed. Therefore it would seem that belief cannot strictly be logically one in all different cases but must be distinguished according to the nature of the proposition that you believe. If you have "I believe  $p$ " and "I believe  $q$ " those two facts, if  $p$  and  $q$  are not of the same logical form, are not of the same logical form in the sense I was speaking of a moment ago, that is in the sense that from "I believe  $p$ " you can derive "I believe  $q$ " by replacing the constituents of one by the constituents of the other. That means that belief itself cannot be treated as being a proper sort of single term. Belief will really have to have different logical forms according to the nature of what is believed. So that the apparent sameness of believing in different cases is more or less illusory.

There are really two main things that one wants to notice in this matter that I am treating of just now. The first is the impossibility of treating the proposition believed as an independent entity, entering as a unit into the occurrence of the belief, and the other is the impossibility of putting the subordinate verb on a level with its terms as an object term in the belief. That is a point in which I think that the theory of judgment which I set forth once in print some years ago was a little unduly simple, because I did then treat the object verb as if one could put it as just an object like the terms, as if one could put "loves" on a level with Desdemona and Cassio as a term for the relation "believe." That is why I have been laying such an emphasis in this lecture to-day on the fact that there are two verbs at least. I hope you will forgive the fact that so much of what I say to-day is tentative and consists of pointing out difficulties. The subject is not very easy and it has not been much dealt with or discussed. Practically nobody has until quite lately begun to consider the problem of the nature of belief with anything like a proper logical apparatus and therefore one has very little to help one in any discussion and so one has to be content on many points at present with pointing out difficulties rather than laying down quite clear solutions.

#### 4 *The question of nomenclature.*

What sort of name shall we give to verbs like "believe" and "wish" and so forth? I should be inclined to call them "propositional verbs." This is merely a suggested name for convenience, because they are verbs which have the *form* of relating an object to a proposition. As I have been explaining, that is not what they really do, but it is convenient to call them propositional verbs. Of course you might call them "attitudes," but I should not like that because it is a psychological term, and although all the

instances in our experience are psychological, there is no reason to suppose that all the verbs I am talking of are psychological. There is never any reason to suppose that sort of thing. One should always remember Spinoza's infinite attributes of Deity. It is quite likely that there are in the world the analogues of his infinite attributes. We have no acquaintance with them, but there is no reason to suppose that the mental and the physical exhaust the whole universe, so one can never say that all the instances of any logical sort of thing are of such and such a nature which is not a logical nature: you do not know enough about the world for that. Therefore I should not suggest that all the verbs that have the form exemplified by believing and willing are psychological. I can only say all I know are.

I notice that in my syllabus I said I was going to deal with truth and falsehood to-day, but there is not much to say about them specifically as they are coming in all the time. The thing one first thinks of as true or false is a proposition, and a proposition is nothing. But a belief is true or false in the same way as a proposition is, so that you do have facts in the world that are true or false. I said a while back that there was no distinction of true and false among facts, but as regards that special class of facts that we call "beliefs," there is, in that sense that a belief which occurs may be true or false, though it is equally a fact in either case. One *might* call wishes false in the same sense when one wishes something that does not happen. The truth or falsehood depends upon the proposition that enters in. I am inclined to think that perception, as opposed to belief, does go straight to the fact and not through the proposition. When you perceive the fact you do not, of course, have error coming in, because the moment it is a fact that is your object error is excluded. I think that verification in the last resort would always reduce itself to the perception of facts. Therefore the logical form of

perception will be different from the logical form of believing, just because of that circumstance that it is a *fact* that comes in. That raises also a number of logical difficulties which I do not propose to go into, but I think you can see for yourself that perceiving would also involve two verbs just as believing does. I am inclined to think that volition differs from desire logically, in a way strictly analogous to that in which perception differs from belief. But it would take us too far from logic to discuss this view.

[TO BE CONTINUED.]

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## THE GREATEST PROBLEM IN VALUE.

THE greatest problem in value I take to be the truth-value. Truth is not itself value. Eternally valid truths must be held to exist without reference to the judging individual. Such universal truths or principles are known in rational intuition; they are the norms or standards of all thinking; and they are, as truths of reason, to be distinguished from facts or the knowledge of particular realities. These *Wahrheiten* must be held to exist eternally, irrespective of their apprehension or not by the human species. They do not exist simply as having a place in the stream of practical development, but are universal, necessary, objective. The truth about a fact does not come after the fact, nor the truth about a reality come after the reality: without truth, neither fact nor reality would be. Truth, however, as truth, is to be distinguished from fact and from reality. Truth is that which is true in itself, and is not mere appearance, as Kant wrongly supposed. When an American philosophical writer says he "cannot conceive by what right a human philosophy has ever announced that the Eternal Order" is "true," I answer, by the best of rights, that of rational intuition. Truth is the most universal presupposition of all thought. But there are ways in which we have come to speak of the truth-value. If we say, "this rose is red," we express only a truth-value or a truth-judgment. Truth-value, if we do use the word value here, is absolute. Truth is the only value that cannot be

denied without contradiction; it is the only value that is really absolute. Goodness, for example, carries universal validity for every subject; but it is not valid for every object; in a sense, therefore, it is not absolute. But there is no object to which the truth test cannot be applied. The validity of truth is absolute, and without condition of any sort. Truth is independent of our knowing, but yet dominates our thought. Truth is thus the central determining value of our conscious reflective life. Truth in objective significance is not what James absurdly called an "inert static relation": that cannot be rightly termed "inert" which is in itself the most potent principle and factor in the world, effecting by its very being or presence the cleavage between the worlds of the true and the false. Even the good presupposes the true, truth being the supreme rational good. Of course, all this is without prejudice to the accepted fact that theoretic or truth-values, as apprehended by us, are never untinged by emotional color.

But there is the large class of judgments that go beyond the truth-value; judgments, I mean, concerning what is good, which express not only the objective value-principle of truth, but the subordinate value-principle of morality. Now, the problem of value, as it has appeared in recent German philosophies of the more extreme value-character, has been seen capable of presentation—if it is to rest upon any theory of knowledge—only on the presupposition that truth itself could be treated as value, in the same way and sense as the other values—goodness and beauty. Hence the post-Kantian "philosophy of spirit" has been replaced in the Windelband-Rickertian representations, by a "philosophy of value," of fundamentally Romantic character and tendency. But it has not been consistently or successfully done. Windelband has attempted it in ways or modes which, without justification, subordinate truth-values to the other universally valid values, instead of coordinating

these last properly, and subordinating them to the truth-values, which may be regarded as, *par excellence*, philosophy. If it must be allowed that Windelband seeks a theory of knowledge, it must be said that he does so only in a peculiar sense of the term. He deals not really with the question wherein truth consists, but only with the way in which man reaches it. His task is thus not one as to theoretic truth, nor yet a psychological one, but one as to theory of knowledge, or theoretic knowing, in the peculiar sense in which that is meant by him. "Peculiar," I say, because he treats laws and categories which are usually taken for truth, as mere means thereto. He holds to the doctrine that judgment is an act of the will *par excellence*, emphasizing our spontaneity in the outgoing of this will-moment in knowledge. In this way he hopes to found a primacy of the practical reason in logic. Windelband fails to realize that the truth-value is a higher inquiry than that after any of the other universally valid values, and so he unwarrantably inclines to coordinate it with them in an untenable way.

There are many defects and inconsistencies in Rickert's value-attempts also, although I am not now called on to detail them. His attempt, however, to equalize the logical and the ethical conscience is, it must be said, a very strained and unsatisfactory affair. He expressly says that the *Sollen*, as object to the judging subject, is not something to be understood, or to be thought, but a *Sollen* which is transcendent, does not exist as fact, but is timelessly valid. He sharply opposes it to being. The *Sollen* is not pure value, he says: value belongs to the *Sollen* only as it is related to a recognizing subject. Truth, to Rickert, is nothing else than recognition of the *Sollen*. Now, an unknown logical *Sollen* interpreted through an unknown ethical *Sollen* seems to me a case of *obscurum per obscurius*; the logical conscience, we are told, is only a particular form

of the ethical conscience in general. The theoretic function is, on Rickert's philosophy of values, erroneously reduced to a practical one, by the object of knowledge being taken, not as that which is, but as that which ought to be. Rickert's is no more satisfactory than was Fichte's attempt to condition all theoretic knowledge on moral law, in crass neglect of the natural order and experience. The fundamental concept of ethics, it is said, becomes in Rickert's way raised to the dignity of the true! How *can* that be, when, on his own showing, the true only reaches its own dignity as drawn from duty-fulfilment? The dignity of the true he has already destroyed by his reduction of the logical conscience—a procedure which leaves the knowledge-problem quite unsolved. A transcendent *Sollen* will not satisfy the metaphysical view of things and their profound unity, which certainly cannot be subsumed under our moral experience. This would make the human spirit, with the values Rickert provides for it, a simple monstrosity in such a world as that we have on our hands. Duty does not call us to transcend consciousness in the absolute fashion projected by Rickert; such an *ought-to-be*, detached from all thought, feeling, and will, belonging to an absolutely transcendent order, is neither necessary to knowledge nor consonant with it. Knowledge belongs to the real order of things, in which the object exists independently of the cognitive act. It is not the case, as Rickert pretends, that knowledge has to do only with the ideal, not with the real: knowledge is a thing of individual experience, and not referable to an abstract and fictional *Bewusstsein überhaupt*, correspondent to nothing in reality. Such knowledge of the world of reality gives truth or existential judgments, not judgments of value. Rickert fails to do any manner of justice to the world of natural reality. Obviously, the entire procedure of Rickert would make the truth-value an ethical value, as one finds already suggested,

long before, in Ulrici (*Gott und der Mensch*, Vol. II, pp. 131-136). Although Ulrici makes truth an ethical idea, he does not mean to deny that the universal logical categories are truth in the form of concept; but he chooses to concern himself too exclusively with truth as it comes to consciousness in us; and he makes it an ethical idea, as desired by us as beings of an ethical character and determination. Whether in this he does justice to the place and functions of reason and intellect in the apprehension of truth is another matter, and one on which I am inclined to think he lays a rather onesided ethical stress. But such a stress was rather unusual in 1873. In the strange fashion already described does Rickert try to carry out his idea of making the theory of knowledge the base of all philosophy. His theory of knowledge is, of course, ethically swamped. His conclusion, unsatisfactory enough, is that our knowing rests upon a resolution of the will. Surely a not very theoretic *finale*. The perception of truth is, in my judgment, far too completely an act of the intellect, not directly dependent on the will, to belong, in any primary fashion, to ethical character or choice: one believes on evidence, and has no choice in the matter. Rickert actually takes the position that for the man who wills not truth, its validity is not to be grounded. That is true only where consent of the will is called for, in respect of ethical truth, that there may be harmony of the will with truth already known by the reason. The sphere of ethics ought to be distinguished from that of correct thinking. Instead of which, Rickert reduces the truth to the good. Rickert is thus found, in his whole position, badly confounding the psychologically real grounds of judgment with the logical grounds of the truth of judgment. But the logician does not admit that subjective desires and prepossessions have to do with truth. The truth of a logical concept is, to him, independent of experience; a concept may be a true concept, apart from

whether anything real corresponds to it. Eternal truths, he holds, have nothing to do with the subjectivity of the individual. Rickert fails to recognize knowledge of being, because he does not fully distinguish pure logic, or theory of truth, from theory of knowledge, or noëtics. Not psychology, but logic, has to do with absolute, unconditioned truth.

Truth, so taken, is no factual affair, and does not belong to space and time. Truth is eternal and independent of the judging individual. Husserl not only contends that truth is above all temporality, but holds the absolute truth and validity of logical laws, concepts, and judgments, though with his positions *in extenso* I am not here concerned. Volkelt has urged that it is reference for proof "to a somewhat, separate from us, and not possessed by us, which gives their peculiar significance to the expressions of certainty and logical compulsion." Bradley, whose discussion is valuable albeit he does not at all points express himself quite consistently, says "truths must exist in a mind"; "but the truth itself does not consist in its existence in me"; yet he adds, "truth may not be truth at all apart from its existence" in "finite subjects" (*Essays in Truth and Reality*, p. 87). To the last expression, some exception may certainly be taken, in the light of what has been already advanced. He does better when he says that though he "can find in truth the satisfaction of a want," in which case "its existence" in himself depends "at least very largely" on the will, yet he "cannot regard its nature as subject" to the will (*ibid.*, p. 87). The step which Bradley rightly refuses to take was taken by Münsterberg's voluntarism, which takes truth to be won by willing, by our creative activities. Truth is thus created, not copied. The doer, or, it may be, the deed, not merely finds, but, on this theory, is, the truth. No satisfactory theory of the objectivity of truth is possible on such a basis. Even the volun-

tarism of Royce holds, in a very objectionable form, "that all truth is indeed relative to the expression of our will," although "the will inevitably determines for itself forms of activity which are objectively valid and absolute" (paper at the Congress of Philosophy in Heidelberg, 1908). It appears to me that to mix up the will in its action in this fashion is to make the truth question no longer a logical one at all. To that I shall return presently. Bradley, of whom I have spoken, goes on to maintain (p. 88) that truth, like beauty, is, from one side—the side of essence—*independent of the will*, although there is another and practical side in which truth involves need and desire. In this sense, truth is "the satisfaction of a want" (p. 87), but there is truth, for all that, which transcends individual life. The objective and transcendent character of such truth was already finely expressed by Augustine. Thus truth is "at once dependent and free." Says Mr. Joachim, "*independent truth itself*" yet lives in "finite minds," but it does not so, in my view, simply and solely *as my thought*. All this amounts to what I prefer to designate as truth absolute and truth relative, and it is with the former aspect I am now mainly concerned. Truth in this absolute sense is, in its essence, eternal: truth is not made by us, as James and Dewey have maintained. I hold, like Bradley, their supposition to be absurd and untenable. I do not "make" truth save in the subjective sense that, but for my mind and truth's entering into it, truth would not exist for me at all. But truth itself I have not "made"; no more can I destroy it; and the objection that there is no objective or independent truth cannot be sustained. It is the nature of truth, not its supposed "making," that concerns us.

Essential truth is not man-made; there is inherent absurdity in the supposition, as Bradley has sufficiently shown. Schopenhauer held that truth is the reference of a judgment to something outside itself, as its sufficient ground,

while Hegel thought that by truth was chiefly to be understood that I *know* how something *is*; this is truth only in relation to consciousness. Kant, Hegel, and Kuno Fischer regard truth as consisting in the agreement of the concept with its object, as did J. E. Erdmann, to whom "that is true which is known as it is." But, for all the talk concerning the *adaequatio intellectus cum re*, it will be found, I believe, that we are more indebted to Aquinas in this matter than to any subsequent philosopher whatsoever. And in all these cases, the "object," I contend, must be far wider than actual reality, as we shall see. I do not agree with Lotze that truths exist only in the thought, of a thinker, for there is truth that is before him, and waits for his finding or discovery. It is this objectivity of truth that has impelled to truth's quest at all times. Lotze, however, thinks the mind "only recognizes truth in as far as it belongs to its own nature from all eternity," a somewhat far-fetched connection; "truth that was originally unconnected with it," it could not "comprehend"; "it cannot be external to him, who is to recognize it"; "its recognition is only thinkable as cognition of our own being in it" (*Mikrokosmos*, Vol. II, p. 698). But the externality of truth need surely not be such as to keep us from knowing it, any more than the externality of nature prevents our recognition of it: in both cases the mind is destined to knowledge; in the case of truth, it is made a real and inward possession. But I should beg to be excused from taking Bradley's "I have now a toothache" as a sample of the externality of truth (*Essays in Truth and Reality*, p. 340), because both it, and the reasons supporting it, appear to me absurdly inadequate. I hold truth to be one, and reality one, but the unity of truth—the congruous and harmonious character of all truth—is not to me the unity of a whole made up, by treating truth as an existent, of partial truths, all of which, as parts of a whole, are only

partially true. There are many concentric circles within the orb of truth. But, in the view I am speaking of, "the true" is said to be "the Whole," short of which no isolated truth can be completely true. This whole, however, is supposed to be an organic unity or significant whole, "all its constituent elements reciprocally" involving one another or determining one another's being. Such is the supposed whole of truth, short of which no truths are perfectly true. This theory of truth has too many difficulties, some of which I am now pointing out, while some have been dealt with by Mr. Bertrand Russell (*Proceedings of Aristotelian Society*, 1907), and some by Dr. Aveling (*Proceedings of Aristotelian Society*, 1915) for it to be satisfactory. There are many isolated judgments or single propositions which, as Russell remarks, must be held "true in a sense in which their contradictories are not true." Those propositions I take for true, which are in character universal, and not particular; the particular is immediately experienced, and neither asks to be, nor can be, proved. No particular truth, indeed, is true, except through universal truth. But the general truth is not derived from the particular truth; such is seen to be the case in such a general truth as that all the diameters of the same circle are equal. Bradley makes truth ideal, yet practically treats it as an existent, and merges it in reality. But even when truth is taken as value, such value is valid, but not existent. But truth is to Bradley in a sense a failure, since it comes short, in the view of his *Appearance and Reality*, of being "quite identical with reality", in which latter it may even be "swallowed up". But this cannot be, since truth is about reality, with which it is not to be thus identified or confounded. Truth is not to be, as Dewey has said of Bradley, "a sort of transcendent essence on its own account" (*Mind*, July, 1907, p. 334).

Truth is not merged or transformed into reality; com-

pleted truth must still be truth, and not a merging in the concrete whole, termed the Absolute. There are primary and self-evident truths or principles which are recalcitrant to such a mode of treatment, as connected only with concrete reality. It is said that "truth is a word which has no meaning without the implicate of reality" (G. T. Ladd, *Theory of Knowledge*, p. 58). Now, when it is said that truth and reality are correlative, or that truth is the intellectual equivalent of reality, though the range of the correctness of the statement may be obvious, yet it is not to me wholly satisfying, since it involves reality being taken in a sense so unusual as to seem unreal. To make it satisfactory, we should need to extend the sphere of being or reality so as to include truths that seem unreal in a merely factual sense. The figures of geometry, for example, must be held real, as being the true ones of conception, a point which Mill failed to appreciate. Erdmann is therefore found saying that a so-called actual parabola is none, while a true one is that which is found in its formula. Locke strongly held mathematical truths—of figures and their properties—true and real apart from all "real existence in matter." The universal thought-forms, as in logic and mathematics, severed from all determinate content, can be object of thought and inquiry, and are then neither unreal nor untrue. Their objective truth and validity cannot properly be denied. They are no hypotheses, framed to explain determinate appearances. Such thought is still a fact of mental life, valid and indispensable. The question is one of theory of knowledge, not of metaphysics. We may say their objective validity is *sui generis*, but the judgments belong to the sphere of truth all the same, and no theory or system of truth but must take full account of them. Factual truth means that the quality of the facts is such that they are true. But truth cannot be confined to brute fact; there is also propositional truth, to which being

cannot without stultification be denied, if any comprehensive view of truth is to be taken. This seems necessary to remember, when we are told that all truth "must be referred to the test of reality" (G. T. Ladd, *Theory of Knowledge*, p. 454). Of course, I admit, in what has been said, that being real imports more than simply being, which latter is the widest and most fundamental category. Rosmini held that, in the last analysis, the truth of a thing is just its being. Truth and being were to him equivalent. The truth of knowledge was, to him, known being. What was conformable to ideal being was, for him, true. But such a complete identification of truth with being, as Rosmini made, cannot be held admissible or correct, since truth is not being, but only a quality, property, or attribute of being. We see, then, that there is objective truth in itself as well as truth for us.

Again, when it is contended that truth means such a judgment as corresponds to the being of the really existent, we may again feel that this reference to existents, however we may have to accept it, does not seem satisfactorily to cover the whole conceivable range and extent of truth. Of course, a truth is not truth, if it be not real, and so we are haunted by the shadow of reality again, and yet the truth may be so ideal that the thought of the really existent is repellent in such a connection. Yet there are important thinkers to-day who allow only those judgments to be true, of which the objective fact is really existent. Surely there are evident judgments, where no concrete actuality of the objectives are concerned, that cannot be false. Mathematics and formal logic are examples in their remoteness from ordinary reality: truth, in their purest results, springs up in independence—it might even be said, because of the independence—of real existents, since they both belong to the sphere of things not seen. Why, then, can it be quite satisfactory for philosophers to keep on binding all truth to

association with the really existent? These truths—I mean, of pure mathematics and formal logic—may be pure abstractions, but you do not deny them the name of truth, because they are abstract and independent of reality, even though they not be incapable of being brought into some sort of relation to, and bearing upon, reality. I am, of course, well aware of those philosophical quarters in which it is blankly denied that there is any abstract truth, or truth in itself, but I do not think such denial is conformable to true reason. The truths of pure mathematics and formal logic, of which I have been speaking, are completely and unconditionally true, independently of their place in this or that particular mind. So absolute are the truths of pure logic that to deny them is simply to reassert them in new form. Royce seems to me right in claiming that recent thought and discovery in respect of the system of geometrical truth, and the sphere of logical analysis, tend to a more rigid and objective conception of truth, to fundamental thinking. There was no occasion to mar this statement by tacking his absurd absolute voluntarism on to it. The truth-relations seem, in such cases, to be, in a sense, absolute; one may at least say, free of contingency and of caprice. Yet the Absolute seems to me a conception that goes beyond mathematics as concerned with the quantitative, which, however indefinitely expanded, is no more than one form of the infinite.

But the independence of truth is to be seen in the world of concrete reality also. Prof. Lloyd Morgan, in an able and interesting paper (*Proceedings of Aristotelian Society*, 1917), concludes to the presence of extra-mental “truth in the structure of the knowable world,” which, he says, “may not yet be known—perhaps may never be known by us,” but which “is there all the same”; also, “truth in the structure of the sphere of knowledge,” marked by consistency; and finally, “truth as correspondence” of the two spheres—

knowledge and the knowable—just spoken of. He does not mean anything “static” by truth-structure, since the knowable world is in the making, under development and evolution. This line of thought does not necessarily help us greatly, as it stands, toward the determination of absolute and eternal truth. I mean, individual phenomena in the empiric world, simply taken, do not enable you to reach absolute truth, only supersensible law being the really true. But it is of interest and value over against the contention of James that “theoretic truth” dwells “*within* the mind.” It militates in certain ways against the pragmatism and instrumentalism that make all truth instrumental and relative, and reduce truth to a biological and psychological value. Truth, in such a view, grows with our growth, and changes with our needs. Truth is, on this theory, just our control of the objects of experience, and that is the use of scientific hypotheses. The truth of ideas lies in their empirical value, in how far they “work.” This is made the sole criterion of truth. Truth is a mere social product, to this view. A useful enough aspect of truth, so far as it goes, but inadequate, as a theory of truth, since it is too individualistic, and never gets so far as to become objective, and supra-temporal in significant import; it is one which was not wholly absent from Socrates, the Sophists, the Stoics, and the Epicureans, though developed and set in novel forms in our time. But the true in itself is not sought, nor believed in; what is true is true only for the subject; individual instinct figures too largely in pragmatist knowledge, instead of the theoretic knowledge which seeks after universal rules. But will does not make a knowledge-content for truth; truth in its objectivity is independent of the knowing subject’s acknowledgement of it. Akin to the pragmatist view is that of Höffding when, in his *Problems of Philosophy*, he makes truth a dynamic concept, as representing the application of mental energy; but this is only

one side of the truth, and is defective in respect of the other aspect, on which I am insisting. It is mere gratuitous dogmatism when Höffding says every static aspect of truth must be given up in favor of practicality and working-value. His view, true so far as it goes, remains unconvincing, subjective, and lacking in grasp of truth- or reality-values. Lloyd Morgan's view, which I have touched upon, is objective over against such subjectivity, but his view is also evolutionary, and, in some senses at least, relativistic. Says he, "Ask the physicist, the chemist, the physiologist—ask any representative man of science—where truth lives and has its home awaiting discovery, and he will say it is out there in that which it is his special business to interpret." So little does the scientist "make" truth, or even empirical truths, and the scientific conscience will remain refractory to being subsumed under Rickert's ethical conscience.

It may be noted that in Dr. Schiller's rhetorical declamations against "The Rationalistic Conception of Truth" (*Proceedings of Aristotelian Society*, 1909), he is really concerning himself with how truth is in the subject; he is simply speaking in a different tongue from those who contend that truth is objective and independent, and signifies agreement with transcendent reality. Refutation can obviously not be effected by him in such a way. The truth is, that in our knowledge of the objectively real world, taking reality in its widest sense, as in our knowledge of the ethical world, we run up against standards of truth that are absolute, and try in vain to rid ourselves of truth which is absolute and eternal. In these realms we come upon truths, axioms, principles, laws, and ideals of reason which are universally valid and eternal. These carry for us objective validity as principles and laws of things, and as norms that regulate all thinking and all knowing, because in them reason is realized. Logical laws, like the law of identity and the law of contradiction, suggest themselves

as examples. Logical axioms are universal, because true, not true because universal. In these, as in the case of absolute truths in pure mathematics, I believe, with Russell as against Royce, that we must hold the truths quite independent—in their absolute truth-aspect—of our constructive processes. The relations of numbers, or such a statement as that two straight lines cannot enclose a space, are examples of a condition of things not to be altered without contradiction, by any will-determination of ours whatsoever. As truths of reason, their contradictories are impossible. Of course, the objectivity of number carries no spatial signification, as Dr. A. T. Shearman properly notes (*The Scope of Formal Logic*, p. 139). Besides, the truths of number are independent of all time and circumstance, and are not of the nature of real existents: their reality consists in their validity. These are the positions maintained by Bolzano, by Lotze, consistently or not in his *Logic*, and by Husserl. Again, if we make truth consist in the agreement of the subject with the object, we see the difficulty of this in the ethical sphere, where the object is no real or concrete affair. It is another proof that object or reality must, as I have contended, be taken in a far wider sense than philosophers have done—must be taken to mean an object physical or mental, apart from the perceiving mind. Whatever the nature of the object, our thought is true because the object is as we think it. So far well; but I do not think we have sufficiently probed the true when we have, in current philosophical fashion, made it the mere reflection of being, and have not regarded it as something which has itself being.

There has in recent years been a quickened interest in the nature of truth, which is good to see; but I am by no means sure that any great or satisfying philosophical advance has been made. There is still need, as Leibniz pointed out, not to be content to consider truth "from the

outside and merely to call it by its name, but penetrate into its recesses and perceive distinctly the logic and harmony contained in it." But the current conception of truth as agreement with reality does not seem to partake greatly of this inward character, for it regards thought and thing as two very isolated terms, and makes truth consist in the mere agreement of the former with the latter. But knowledge or thought is thus a mere pendant of things, and deeper or anterior aspects of the true do not seem to me to be reached in this way. I mean, there is truth of being—ontological, or if you will, transcendental truth—not reached by such posterior descriptive knowledge. But, although truth is invoked in being, the concept of truth is not to be thought of as involved in the concept of being: the distinctiveness of each is to be maintained. Truth is essentially inclusive of being; the form of the true calls, by its very nature, for being. These remarks are corrective of Rosmini's view, already referred to.

Not much has been done by pragmatism toward a coherent theory of truth, and the efforts of Bradley and others toward a monistic theory of truth—a logical monism resting, in a certain way, on an ontological monism—is by no means in all respects satisfying, as I have shown. Unity of truth, no doubt, we must have, but whether it is to be such a simple unity—organic in the sense meant in that theory—or whether it may not be the unity of harmony, mutual consistency or agreement between different grades or circles or levels of truth, is the question. Bergson also, it should be noted, is fundamentally preoccupied with existence, to the neglect of pure thought, as in logic and mathematics, so that I conceive his theory of knowledge and of truth to be defective. I am by no means sure that the modern attempts at simplicity and unification, in respect of truth, are improvements upon the forgotten efforts of the older philosophers. They saw the difficulty of arriving at

a single definition of truth, its significance being so wide at the fullest, and the forms of truth so diverse and variant. But they viewed truth, in whichever of its many forms found, as always expressive of some sort of equation or correspondence, although I do not think even this covered the whole case for truth, as I shall presently show. They distinguished between the different kinds of truth, however, and surely philosophy is still concerned with definition, distinction, and difference, through which alone satisfactory ultimate unity can be reached. Some of them enumerated logical truth, or the correspondence between thought and its laws; conceptual truth, or the correspondence between thought and object; ontological—sometimes termed transcendental—truth, or the correspondence of thought with being; and moral truth. But the true was practically regarded as matter of posterior knowledge or aspect only. Others spoke of *veritas entis*, *veritas cognitionis*, and *veritas signi*, while yet others made the distinctions of "entitative," "objective," and "formal" truth, the last including signs. They all recognized the importance of the fundamental category of being, as the ground of all truth—that truth "by which a thing is what it is"; and we have need to recognize the manifold senses in which we still speak of being or reality.

Truth may be the simple equivalent of reality, so long as you are only speaking of things, but there is wider reality than that of things, and to this wider reality truth or thought is related. Indeed, Schelling preferred to understand truth as agreement of a thought-content with itself, rather than agreement of thought with an object. But this latter has its truth and value, and it does not seem that it can be set aside in this way. But it is not enough to say that that which is, has truth of being. If we say the object of my thought is always reality, then reality must be more widely taken than concrete reality. Would the logician

think of denying, in respect of thoughts or of feelings, that they exist—have truth of being? The reality of thought lies, of course, in its being thought, the reality of feeling in its being felt. In like manner, we say a law or a relation exists or is real, but its being or reality is not that of things. But would the older procedure be sustained today when it said that a concept, which had admittedly truth of being in it, was not a true concept, because no reality existed corresponding to it? Conceptual truth only, if you will, but still truth after its kind. If the logician thinks a truth, which is necessary to thought, but has no outward reality existing corresponding to it, is his truth to be held, as in the older view, not true? Must we not recognize that there is a truth or logic of consistency, as well as a truth or logic of factual experience? In which case, the accordance of the notions—whose laws of reality are derived from reason—is the criterion of truth. This is knowledge through judgment or reflection, into which error may enter through default of reason, while the other case—that of the object in perception—is knowledge by intuition. But not even experience, properly conceived, is tied down to truths or judgments that relate to reality, in the ordinary sense of that term. Reality should therefore stand for anything that may affect consciousness, whether it be a fact of nature, or a mental fact, standing apart from the perceiving mind. Surely if truth is to be taken as correlative of reality, reality must be construed in a very wide sense indeed, if there is to be a thoroughly consistent procedure in dealing with supposed being or reality. At any rate, what many-faceted terms being and reality are, must be more taken account of in truth discussions. Something more is required than merely to talk of "the thoroughgoing unity of reality," when it is evident that reality is being restricted to one particular sense, that of outer reality. But the fact is that truth is really that to which reality should, in es-

sence and character, conform or correspond, rather than something that, less satisfactorily, must conform to reality. For there cannot be reality—whatever appearance there may be—unless the true has anteriorly gone to the making of it. It is the losing sight of this inner aspect of the case that has made truth remain the outside affair—defective, as Bradley admits, because it is merely “about” reality—it has been so much allowed to be. But truth is that transcendental quality of being which relates it to intellect. We have no right to neglect the other side of the shield, the *adaequatio rei cum intellectu*, as is almost invariably done. Things are true through a first or primal truth which made them what they are, and that primal truth any adequate or thorough theory of truth must seek to win, or at least to recognize. The truth of first principles belongs to such primal truth.

Now, in the case of such divisions of truth as have been considered, it has been said that they are unified in God who, as the supreme or transcendent truth, is each of them without limit. But that is scarcely a satisfactory procedure, since what we are seeking is a coherent system or view of truth to human apprehension. There are inherently good reasons for not now wishing to consider thus truth in God, where it is all-embracing and infinitely complete, but as we may systematically apprehend it. It is not satisfactory to say with Lotze, in his *Logic*, that “truth and the knowledge of truth consist only in the laws of interconnection which are found to obtain universally within a given set of ideas.” This is characteristically a too subjective mode of putting the case, in which ideas figure too much as divorced from reality and experience. I mean, it seems to me too conceptual, too little ontological, in its mode of representation. This task, though it is not now my main concern, must involve taking account of the vast connection of all knowledges, and the linking up and binding together of indi-

vidual truths, into a perfectly harmonious system or synoptic view of truth. I have already spoken of the unity of truth, and unity spells such connection. In this systematic whole or universe of truth, each individual truth, having a value in itself independently of its significance for the whole, has its place and worth; for there it ministers to the highest end or purpose of the whole. But the whole is no mere aggregate or sum. I am speaking of what may be eventually regarded as a metaphysical conception or view of truth.

We now see what kind of value, if value it should be called, truth may be taken to be, namely, a real spiritual appearance, pure, untroubled, objective to, and independent of us, and ideally reached or apprehended by us. Truth is in this sense absolute. This is, no doubt, truth in the abstract, but it is truth with which I have chosen to concern myself, in maintaining that it is not value, in the sense in which we commonly speak of goodness and beauty as values. We may call it truth- or reason-value, no doubt, meaning that it simply is. It is truth which is not affected by the influence of feeling upon our actual thinking. It is truth whose validity is self-evident, or if you will, self-existent. It is somewhat incorrect to say of such truth, as Dr. Schiller does, that "there is no *knowing* without *valuing*" (*Humanism*, p. 10). Such truth as I have been speaking of remains truth, did we neither know it nor value it. As value exists only for a conscious subject, truth in this sense should not be called value, and our knowing it is not necessarily valuing it, in any proper sense of the term. It awaits no consent of our will to its being true, but demands acceptance *nolens volens*. All truth is logical, so far as it is truth, though logic is, of course, concerned only with the formal aspect of truth. It is not a source of material truth, which is found in experience. But there is a relative aspect, in which truth

has a relation to us—in a subjective sense. In this sense, truth may be viewed as a species of value, as it becomes the satisfaction of a want in us. In this connection, I am, of course, not concerned to deny the pragmatist contention as to the part played by feeling upon our thought, when forming our subjective conceptions of truth in practical life and action. But even there, the transcendent element in knowing should not be lost sight of. Nor is the objectivity of truth or knowledge to be sacrificed, even as was done by Lotze, when he admitted "the completely human subjectivity of all our knowledge," and held that "this universal character of subjectivity, belonging to all knowledge, can settle nothing as to its truth or untruth" (*Metaphysics*, Vol. I, p. 220). The world of reality is not so lost to us that "the changing world of ideas" is all we have to work upon.

But I return to the primacy of the truth-value, with which I started. That primacy cannot be surrendered to those who would reduce the true to the good, or subordinate it thereto. The truth-value is, in my view, to be ranked as conceptually prior, and superior in quality or excellence, to the values of goodness and beauty. The priority of truth is seen in the fact that, in expressing what simply is, it states the ontologically true; it is in closer relation, so to speak, to being than is goodness, which latter waits on desire, which is absent from the concept of being; and in its appeal to reason or intellect, the true is apprehended by the highest, divinest faculty in man. Goodness comes naturally and necessarily after truth, because, in its appeal to feeling, will, and desire, it is constituted by what is of the nature of addition to the true. This is so, because the good is appreciated by the reason or intellect also, seeing that a good, to be desired, must be known and recognized or understood. In other words, more than being or existence is involved in the idea of the good, as the object of

desire. Truth has to do with being simply; it is more simple, more abstract, more absolute, than the good; goodness is, in some sort, a desirable accompaniment of being. That is to say, there is a connotation in goodness not present in truth as concerned with pure being. Yet the true is a good, and the good is something true. Lotze's metaphysical position, that truth is not the *prius*, but dependent on the realm of the good, is one which, in my view, cannot be sustained, because it imports very imperfect appreciation of the primal and absolute Reason, which is at the base and bottom of things. He thinks it is impossible (*Metaphysics*, Vol. I, p. 207) there should be "an absolute *prius*" of forms of any necessary sort, but with glaring inconsistency makes metaphysical truth depend upon a world that rests on the principle of the good, so making the form of the good a preexistent affair after all. As if the ascription of good would endow truth with an objective character which did not belong to it in itself! Lotze's whole denial of absolute truth is to be decisively rejected, as ill-supported and untenable: it is part of the relativity and subjectivity of his whole position. Truth, relative and empirical, is all Lotze has to give us. It is satisfactory to find Ulrici, to whom I have already referred, making the concept of the good rest upon that of the true, despite his treatment of the true as an ethical idea. Better, at any rate, than Dr. Schiller's absurd attempt to subsume the true under the good (*Humanism*, p. 11), which only a defective metaphysical sense could be content to do. For the good, as resting upon the true, is our rational end.

Dr. Schiller is by no means alone in the mistaken notion that the good is such an ultimate and unanalyzable notion; but it is quite delusive to suppose that the good is unaffected by any truth about what is real. An excellent example of this untenable position is afforded by R. L. Nettleship's view of the good, as held by Plato, as "the condition of the

logical *prius*" of being, truth, and order, and not to be "identified" with any one of them. Whether the *ensemble* of Plato's teaching held such a rigid, clear-cut theory of the good, as is here represented, need not now be inquired into. But such a claim, by whomsoever made, cannot be sustained, such a priority of good being non-existent and due to misconception of the nature of the good. A good so anterior and unrelated to anything, and so undefined in character, cannot be satisfactory. I have already spoken of it in connection with Lotze. We must not overlook the criterion of the good, as "something that must," as I have said elsewhere, "be determined by the laws and ideals of reason" (*Studies in European Philosophy*, p. 339). The good "presupposes the true, and the knowledge of it is founded on being" (*ibid.*, p. 339). We have no right to give an irrational cast to ethical good, or to be led by bad psychology into grounding moral distinctions in feeling rather than in reason. The good desired must be ideal good, desired for its own intrinsic worth and value. Such good may be, and indeed is, universally valid, but there is nothing, in the nature of the good, that detracts from the primary character of the truth-value, as applicable test of all objects as well as all subjects. We may say, with Aquinas, that there is a sense in which every entity is true, but it is manifestly absurd to try to confine true and false to mere propositions. In plain fact and actual usage, the true is often taken, broadly, as equivalent to the real. If we speak of true gold, it is because there intelligibly is false gold; if we speak of true hair, it is because there is, in a significant sense, false hair; into the character of these and similar falsities, I am not now concerned to inquire; it is enough to note that there are intelligible and important senses in which the truth test can be applied to objects, and is not confined to propositions. True as an entity in one sense may be, it may be false as related to our thought.

I turn from goodness to another value, that of beauty. Beauty may not be a transcendental quality of being, but the concept of the beautiful follows certain transcendental concepts. Beauty is very closely connected with the true and the good, both of which it presupposes. But the beautiful is not synonymous with the true, since there are many true things that are ugly. Neither the true nor the good is necessarily pleasing, as is the case with beauty. Not Keats alone has identified truth and beauty, but many philosophers also. This, I do not wish to do, but to maintain a distinctiveness for beauty, as was done by Kant and Schiller. We cannot say, "beauty is truth, truth beauty," making a blank identity of them; we must explicate the senses in which both terms are to be understood in making such a statement. Not only must we avoid the mistake of making truth and beauty identical, but shun still more the folly of those who would rank beauty above truth. Even Hegel was too much inclined to treat truth and beauty as one and the same, the beautiful being but the shining manifestation of the idea—a true but incomplete account of beauty, though his theory is of high value. The close connection of beauty with the true is seen in the appeal of beauty to reason or intellect in esthetic contemplation, where even Schopenhauer proclaimed the absence of will, as in the case of the good. Ultimately one must hold beauty to be a revelation of reason, reason in a sensuous form, for it conveys truth or thought of reason. This is not to be wondered at when we consider such elements as completeness or perfection of parts, order or proportion, etc., which engage reason-elements of appreciation. We may rest in the beauty of a great picture, but it is, at the same time, expression and token of truth. But desire is not here active, as in the case of the good, though Baumgarten did postulate excitation of desire; our delight in beauty springs from contemplation, apart from possession; in such apprehension

of beauty, the powers employed are very largely those that belong to reason or the cognitive order, although Kant thought there was also present a harmony with striving and purposeful endeavor. Esthetic feeling is consequent on the primary intellectual apprehension, so that there is a reason-feeling in the perceiving subject. But that does not mean that beauty is not to be loved for its own sake or intrinsic worth. While beauty has its relative aspect or truth, yet objectivity and universality can be claimed for the beautiful. Beauty is thus what Bradley called "the self-existent pleasant." But the appreciation of the beautiful is not self-grounded, but rests on truth of being. It is appreciation of an ideal—an ideal of perfection perceived in the object.

Already in Plato it was seen what beauty alone could do for our knowledge of the good. But beauty is not synonymous with the good, for there are good things which are not beautiful. We do not apply beautiful to the objects of taste, smell, and touch, all good in their way. Goethe ranked the beautiful higher than the good, as being inclusive of the good. The beautiful and the good have sometimes been taken to be identical, the beautiful being regarded as the more ultimate in its freedom from the striving which marks the good. It does not seem to me either a very critical or happy attempt at identification. The emotion of beauty is to be distinguished from the sentiment of the good in quite a number of respects. We cannot, as some philosophers do, subordinate beauty to the good, of which it is said to be one form. It has been properly pointed out that when men speak of the beauty of the good, they are not speaking of beauty "in the specific sense." Its distinctiveness must be maintained, close as their kinship or connection may be. It does not seem to me that we have any right so to merge natural beauty in the morally good. The ideal of beauty and the ideal of the good are not to be

so merged or lost the one in the other. Feeling, in the case of the good, is of more reasoned character: feeling, in the case of beauty, assumes a more sensuous form. Lotze placed beauty midway between the true and the good, but thought it neither solves the theoretic problem of the true, nor the practical problem of the good. A rather obvious reflection, it must be said. But he thinks its mid-position may point to a possible reconciliation of existing contradictions, which does not seem to me to carry us very far, as merely thus stated. But more meaning attaches to the suggestion if and when analysis yields, as features or characters of esthetic emotion, such points as unity in variety, proportion, symmetry, harmony, individuality, and so forth, and if and when the part played by perception, feeling, and imagination in the pleasurable and disinterested contemplation of the beautiful, is considered. In such wise it grows more apparent how the esthetical problem can assume aspects psychological, epistemological, and ontological, which relate it more nearly to the problems of the true and the good than might at first sight appear. To go into that fully would require a discussion by itself. At any rate, being is the seat of value, and not even beauty can be considered without account being taken of the metaphysic of esthetics. Beauty must always have truth of being. But what here concerns us is to say that there is nothing in the problem of beauty that impugns the primacy of the truth-value.

I have held the truth-value to be primary, but I have not meant to suggest that goodness and beauty are merely values to be deduced from the truth-value as fundamental. Central in importance as I take the truth-value to be, to which the other two values are, in a sense, subordinate, yet I think all the three values should be coordinated with each other, and their relations and the character of their absoluteness, marked out. In other words, a reasoned *Wert-*

*gliederung* is our main need. But our leading philosophers speak of values without attempting any such articulation of the values, which they uncritically assume as common sense or mere face values. There is no such thing as an isolated value, every value standing in a system of higher and lower. Objectivity we may claim for all the values, truth, goodness, and beauty, but, in doing so, must remember what a unique and irreducible form of objectivity value is. We must beware of the folly of predicating value of value, as sometimes happens, without any being or reality to which value belongs. Value does not hang in the air in such a fashion, although religious writers on value sometimes notably offend in this way, and occasionally philosophical writers who set an overweening value on value. Even if we hold value to exist before the entrance of desire, yet value is only given for an existing consciousness; without this possibility, a value would be nothing. Nor should we forget that the objectivity of truth is one thing, not to be confounded with the objectivity of either goodness or beauty. If we are to confine ourselves to the truth of experience, it must be experience in the widest sense, as experience of, or in relation to, the transcendent, or what is above mere experience, if any speculative results are to be at all possible to philosophy. For "the concept of experience is itself transcendent of experience, and, in the nature of the case, could admit of no empirical verification." Philosophy is not mere crude empiricism, even if christened "radical," and the question of ultimate truths and principles we have found to be far from an idle or unanswerable one. We have seen that value is always for a subject, but the strange fact remains—one difficult of reconciliation—that value does not yet come and go with the subject that experiences value. Hence some speak of potential values. Of course, there are over-individual values, though they cannot be for us so metaphysically real as those the subject

strikes for himself. There is no satisfactory formal logical or metaphysical principle for the grounding and unification of cosmical values, outside the unity of the subject. You can, no doubt, make value ultimate, more ultimate than existence, but your doing so can never convert a value-judgment into a truth-judgment. When it is thought that values are objective, if they are posited in true value-judgments, the position is an untenable one, because all subjective values, just because they are subjective, must find expression in what are really, *sensu stricto*, false value-judgments. There is no value, properly speaking, outside the world of desire and inclination. Ehrenfels regarded the value of things as due to our desire of them, while Meinong has taken value to be prior, since desire relates to what is not yet present. If value, however, stands or falls with desire, then is value purely relative. Because this is unsatisfactory, the objectivity of absoluteness of the values has been postulated, with variously estimated satisfactoriness. I am inclined to regard the truth-value or existential judgment as the only really absolute one, with what Rickert calls "its category of givenness," and to regard the other values as non-absolute value-judgments. But that does not mean that the values of goodness and of beauty are not absolute in the sense that they are universally valid. If the good be severed from the true, then the objectivity of the good falls away; but the objective truth of the good cannot be so dispensed with; the good has an absolute value, because there is objective good, good that we can isolate in thought as existing in and of itself, and which forms the absolute norm for our will. But this objectivity could not be, if the good were severed from the true, as objectively existent. And so it comes that the values of goodness and of beauty are sustained and illuminated by the truth- or reality-values, since they must be conformable to the truth of things, if they are to be con-

served at all. This, because the content of the practical reason is still an object of inquiry and knowledge to the theoretic reason, even if you say that will- and feeling-values cannot be fully absorbed by this latter reason. When Mr. C. D. Broad says of the theoretic and the practical reason that "there is clearly no question of priority between them" (*Mind*, April, 1918, p. 242), that is an incorrect or defective view; for, in setting up the practical reason, it, with its contents, is, in that very fact, constituted an object of knowledge and investigation to the theoretic reason. It is not necessary that reason should absorb will- and feeling-values, or rob them of their distinctiveness. But it is absurd to suppose that it has not relation to them, or bearing upon them. The theoretic reason is not so divorced from the practical reason, however frequently this Kantian absurdity may have been allowed to permeate modern philosophy. Valuing, by means of the truth-value, and knowing, are loosely called one and the same; but the absolute value is truth, not our knowledge of it. Truth is the last presupposition of every absolutely valid valuation. But it is the first of all preferences, for truth is the most absolute of all things; it is the thought of God, as Kepler found, when he thought God's thoughts after Him. The unity of truth is such that truths are but different aspects or applications of one and the same truth. Truth itself is not multiple; but multiple are the aspects, degrees, and circumstances of its manifestation. Truth, entering the human mind, suffers the weakness of its position there; there is then diversity in the unity of truth. But truth, as it is in itself, is still one. The whole search of man has been for the unity hid behind these diversities. Truth presupposes unity. I do not merely say that truth is one, because God is one; but also, that truth is one, since man is one, and still seeks the unity of truth in its apparent diversities. Theory

of truth is not to be lightly esteemed, for theory is truth itself, and not less rigid and inflexible than truth. It is scarcely possible, in view of what has been said of truth as one, to sustain the position of those philosophers who think there is nothing which can be called the truth, but only an infinite number of truths. For truths do not finally remain isolated and unrelated in the one system of truth. A wholeness of truth we must maintain, whether we can accept any of the proposed systems of truth in whole or not. We have seen that we may not say that a statement, which corresponds to no outer reality, is no truth; that there may be transcendental concepts of truth which we are not entitled to pronounce false; and that there may be statements which we find it quite impossible to doubt, and may have to take for true, though their truth we may never with full certainty be able to pronounce, since they really rest upon our thought. The contention of some philosophers that truth, without a subject that thinks it, is a mere abstraction, is scarcely justifiable, in view of some considerations already advanced. Nor is truth a subjective product, a creation of individual mind, though truth as thought, of course, requires a subject. The value of truth lies precisely in the fact that it is not value; that it is, as truth, objective, irresponsive to desire, and unmoulded by will; and that it is corrective of the terribly and detrimentally characteristic subjectivity of modern thought, which makes so much of the objectivity of value, and so little of the objectivity of truth. This, of course, while I have admitted the sense in which truth may be legitimately regarded as value. But there are truths which are necessarily taken for true; you cannot say that a triangle is a circle, nor a circle a polygon; doubt in such cases is impossible. Such truths are not value, in any proper sense. The opposite of any value can be affirmed; but the opposite of such truths could not be affirmed.

We have seen that there are leading philosophers who have contributed no more toward the discussion of truth than the idle repetition of Hegel's phrase that "the true" is "the Whole." As well tell men that truth is a hopeless quest. That is to remove truth as far as possible from being the central determining power, which I have shown it to be, in human life. If there is to be a whole of truth, one might have supposed it to come through the harmonization and unification of different truths, or levels or spheres of truth. Thus out of truths might spring a whole of truth. But if nothing is true short of the whole, if there are only untruths—truths not completely true—short of this goal, is our whole of truth to be reached by piling up this aggregate of untruths? Kant is even more unsatisfactory than Hegel. For of him we find Dr. Hutchison Stirling saying, "I know not that there is anywhere any truth accessible to Kant" (*What is Thought?* p. 39). Yet truth is not to be escaped. For, as said Aquinas, "He who denies that truth is, grants that truth is; for, if truth is not, it is still true that truth is not." For my own part, I prefer another method of reaching a satisfactory truth-conclusion than that of Hegel. If we take all the different forms, grades, or levels, of truth—logical, conceptual, ontological, moral—and treat them as truth, it does not seem to me at all difficult to conceive their reduction to a final and fundamental unity—a unity of harmony, permanency, consistency, and completeness, subsisting for a mind capable of comprehending, or at least conceiving, them, in their *ensemble* and *rapports*, as convergent, in spite of all apparent divergences and dispersions, toward one central *fons et origo* of truth. In the inexhaustible richness and complexity of truth, as issuing from this common source or center, is overtaken and included all that seems overlooked or imperfectly accounted for in the current talk of truth as concerned only with outer reality. If you say that such a knowledge or view of truth

in its primal unity belongs to the universal order, and appertains in fulness to transcendental Being, I answer, So be it, but we are sufficiently universalized to be able to understand and appreciate the reality of such a view. After all, it should not be forgotten, when we speak of the unity of truth, that the idea of unity has no reality standing by itself, but is included in the idea of being.

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## A COMPARISON OF BERGSON AND SPINOZA

WITH REFERENCE TO THEIR CONCEPTIONS OF  
REALITY AND KNOWLEDGE.

THE French philosophic tradition is predominantly Cartesian. It is to be expected, therefore, that Bergson, educated in this tradition and writing for the French people, should emphasize the authority of Descartes, that he should be at pains to insist, as he does, that philosophers have refused to move in the direction indicated by Descartes, and that the followers of Descartes have abandoned the most essential elements in the system of their master. When Kant affirmed that knowledge cannot be entirely resolved into terms of intelligence, he also, says Bergson, "prepared the way for a new philosophy, which might have established itself in the extra-intellectual matter of knowledge by a higher effort of intuition."<sup>1</sup> However, both Kant and subsequent philosophers neglected to do this. It remains for Bergson to give to philosophy a "revivified Cartesianism." Consequently it should not be surprising if there appear elements of essential agreement between Bergson and the Cartesians. This agreement will be most conspicuous between such as perceive that the Cartesian dualism rests upon a myth, and that, consequently, it must be grounded upon a more fundamental unity. Of those

<sup>1</sup> *Creative Evolution* (trans. by Mitchell), p. 358.

Cartesians who attempted to reconcile this dualism Spinoza alone makes it explicit and converts it into a new and original philosophy. It is to be expected, therefore, that we shall find similarities in Bergson and Spinoza. In this paper I wish to consider but two. I wish to compare the answers of Bergson and Spinoza to the two questions, "What is the nature of Reality?" and "How do we know Reality?"

Shortly before his death, Spinoza wrote a letter<sup>2</sup> in which he says that he has become dissatisfied with Descartes's conception of extension and motion. He declares that he intends, if he lives, to restate these conceptions for himself. According to Descartes extension is originally a plenum of rest in which motion arose, unaccountably, as by a mysterious act of God. The conception which Spinoza offers in his *Ethics* is not far from this: he describes extension as an attribute of Substance, and motion as an infinite and eternal mode of this prior fundamental attribute. It is to be noted, however, that our author is very careful to make explicit the idea that extension like all other aspects of God must reveal him as operation, as action. This thought has inevitable implications which, had he lived longer, must have led him to define extension as such to be clearly and distinctly infinite activity and efficacy. However this may be, Spinoza indicates that by God, Substance, or Reality,<sup>3</sup> he means an infinite power, whose parts are "infinitely modified and compelled to undergo infinite variations."<sup>4</sup>

Thus, for Spinoza, Substance, correctly conceived, is undivided, all-inclusive, and manifested to man only as a twofold activity of thought and physical agency. This conception man attains by means of the complete and ade-

<sup>2</sup> Spinoza's *Works* (Bohn Edition), Letter lxxii. Also see Letter lxx.

<sup>3</sup> *Ethics*, Part II, Prop. 3, note.

<sup>4</sup> Spinoza's *Works* (Bohn Edition), Letter xv.

quate demonstrative knowledge which is science, or by means of an intuition which is based upon science. It declares Substance to be eternal, immanent in and enveloping all space and all time, containing within itself simultaneously all that was, that is, or that becomes. Substance thus conceived, Spinoza designates as *natura naturans*. *Natura naturans* is the metaphysical inwardness of Substance which does not appear in the daily life.<sup>5</sup>

There, thought and experience are of the Imagination, and by Imagination we view nature as *natura naturata*. It is only in *natura naturata* that we conceive individual things. The necessities of life require man to abstract, to cut out from totality the particular individual things by applying to them measure, time, and number.<sup>6</sup> A thing so detached from its context is the concrete individual of the daily life. But its detachment does not in any essential way alter its inner character. Its nature is still that which it has with its context: to be power, to be the endeavor to persist in its own being. It is a center of activity, continuous with an endless series of like active centers, acting upon and undergoing reaction from its peers in the aggregate of being, which is Substance.

For Bergson as well as for Spinoza motion is concrete and real. Bergson objects to the relative motion of geometry. He considers this artificial. It defines movement as change of distance and by implication permits the same object to be in motion or to be motionless according to the

<sup>5</sup> The influence of the scientific concepts of Galileo, Descartes, and others upon Spinoza is frequently overlooked in an interpretation of what Spinoza means by Substance. His indebtedness to the physical theories of Descartes, his identification of Nature, God, and Substance, his definition of virtue as power, his insistence that the essence of an individual is the endeavor to persist in being, and his union of the will and the intellect, would seem to indicate that Substance is an infinite power and an infinite efficacy in which is implicit all of its concrete explications. The following references will bear upon this interpretation: *Ethics*, Part I, Prop. 24, 29 and note, 34, 35, 36; Part II, note to Prop. 3, and Lemma vii; Part III, Prop. 1 to 5; Letter xv of the Bohn Edition, and Chapter II of God, Nature, and Man.

<sup>6</sup> *Works* (Bohn Edition), Letter xxix.

spatial positions to which it is referred.<sup>7</sup> Bergson reminds us that while Descartes thus defined motion when he spoke as geometer, his formulation of the laws of motion in physics assumes motion to be an absolute.<sup>8</sup> This latter conception of motion is the one which Bergson affirms. He would have us abandon the false conception of it which has prevailed since Newton and replace it with Descartes's conception, viz., that motion is a distinct entity, a cause of manifestations, and not an aspect of things. What is real in motion is an ultimate activity or movement that underlies the motion Newton describes and which his laws can only negate, not designate.<sup>9</sup> Direct evidence for the absoluteness and reality of movement occurs constantly, Bergson holds, in immediate experience. The essence of movement is mobility. Now when I see an object change its place, my sensation testifies to the reality of something effectually going on. I am further assured of this reality when I produce a movement by willing it. My muscular sensations assure me that movement takes place. Such a movement appears as a change of state or quality. "But then how should it be otherwise," says Bergson, "when I perceive changes of quality in things? Sound differs absolutely from silence, as also one sound from another sound. Between light and darkness, between shades, the difference is absolute. The passage from one to the other is also an absolutely real phenomenon. I hold then the ends of the chain, muscular sensations within me, the sensible qualities without me, and neither in the one case nor in the other do I see movement, if there be movement as mere relation: it is an absolute."<sup>10</sup> If we hypostasize this inner sensation of movement, we have the very stuff of reality, the *élan vital*.

<sup>7</sup> *Matter and Memory* (Paul and Palmer), p. 254.

<sup>8</sup> *Ibid.*, p. 255.

<sup>9</sup> *Ibid.*, pp. 256-257.

<sup>10</sup> *Ibid.*, p. 258.

For Bergson then, as well as for Spinoza, reality is activity. For both it is movement, unlimited power, and efficacy. Spinoza designates it as *natura naturans*. Bergson calls it vital impulse, *élan vital*, a center "from which worlds shoot out like rockets in a fireworks' display....a continuity of shooting out."<sup>11</sup> There is this difference in Bergson and Spinoza, however: Spinoza insists that anthropomorphic characteristics are not to be ascribed to Substance. This ascription is, however, precisely Bergson's metaphysical ultimate. The *élan vital*, he tells us, is primarily psychological; it is the essence we know in the innermost consciousness of each of us.<sup>12</sup> Spinoza declares that substance is manifested equally through the attributes of extension and thought; but for Bergson thought is the fundamental revealer. Barring this difference, however, the spirituality and materiality of Bergson, his vital and material orders, are the same as Spinoza's attributes of extension and thought. For Spinoza these attributes are two aspects of one and the same thing; for Bergson the difference between mind and body, matter and intellect, is but a degree in tension, a rate of vibration: "Physics is psychics inverted."<sup>13</sup> In our experiences of tension and relaxation, of effort and passivity, we pass by way of inversion from the one process to the other, from spirituality to materiality. Thus neither sensation nor divisible extension is real, but reality is intermediate between each. Reality is neither pure quantity nor pure quality; it partakes of the nature of each; it is "concrete movement, capable like consciousness of prolonging its past into the present, capable, by repeating itself, of engendering sensible qualities."<sup>14</sup>

<sup>11</sup> *Creative Evolution*, p. 248.

<sup>12</sup> *Ibid.*, p. 299.

<sup>13</sup> *Ibid.*, p. 202.

<sup>14</sup> *Matter and Memory*, p. 329.

Not only do we find a similarity between *natura naturans* and the *élan vital*, but if we pass to *natura naturata* and compare the description which the two philosophers give to an individual thing, we shall again find an agreement. We have seen that Spinoza insists that Substance is indivisible; that only in Imaginative knowledge is the continuum of matter apparently divided into discrete objects. Bergson likewise makes emphatic the observation that objects as we deal with them in our practical life are artificial divisions of reality. Both science and intuition, says Bergson, endeavor to "rediscover the natural articulations of a universe we have carved artificially."<sup>15</sup> The living body is a material zone, a center of activity in the totality of movement, and from this totality it cuts out objects, which are outlines of its eventual action. Our needs are so many search-lights "which, directed upon the continuity of sensible qualities, single out in it distinct bodies."<sup>16</sup> Thus, again, for both Bergson and Spinoza the individual thing is an abstraction from a context, a partial representation of reality. And just as Spinoza insists that the individual so conceived retains its inner character unaltered, so Bergson describes the vital impetus as active in each of its cognitively created parts. The *élan vital* is "an original impetus of life passing from one generation of germs through the developed organisms which bridge the interval between the generations."<sup>17</sup> This explains the resemblance we find along distinct lines of evolution, such as that between the structure of the eye of the pecten and that of the vertebrate, although each separated from its parent stock before the appearance of the complex eye. In each there has become explicit what was implicit in the original impulses. Species and individual, each is a manifestation of the unwinding of an internal activity.

<sup>15</sup> *Creative Evolution*, p. 260.

<sup>16</sup> *Matter and Memory*, p. 262.

<sup>17</sup> *Creative Evolution*, p. 87.

When we pass to Bergson's and Spinoza's criticism of knowledge and to an examination of their methods for the attainment of knowledge we again find an essential agreement. The differences, bar sentiment and background, are verbal. Bergson speaks out of a rich hinterland of data from biology and physics and his terms are those of modern psychology. Spinoza, unhappily, beclouds his philosophy for the present-day student with his scholastic terminology and his geometrical method of proof. Both, however, offer identical criticisms of certain modes of knowing. I wish first to contrast their criticisms of practical knowledge.

Each philosopher, we have seen, agrees that in our practical activity we do not properly grasp reality or truth. Spinoza designates practical knowing, knowledge of the Imagination. In the Imagination the mind "has not an adequate but only a confused and fragmentary knowledge of itself, of its own body, and of external bodies."<sup>18</sup> It is in Imaginative knowledge, however, that men form general or universal ideas. The individual acquires these as a result of what he learns from others or from his personal experience with individual objects. These various images run together, and as both diverse and essential elements of specific individualities experienced drop out, a general idea forms itself. But, manifestly, the general idea of horse does not express what a living horse really is. It retains only that which is common in one's numerous experiences with living horses, and that which is relative to one's own needs and purposes.<sup>19</sup> Spinoza, therefore, follows the nominalists, and condemns the general idea as inadequate and relative.

Similarly Bergson, in his criticism of conceptual knowledge, in the *Introduction to Metaphysics*. What Spinoza terms Imaginative knowledge Bergson there designates

<sup>18</sup> *Ethics*, Part II, Prop. 29.

<sup>19</sup> *Ibid.*, Part II, Prop. 40, note 1.

conceptual or symbolic knowledge. There are, he holds, two ways of knowing: the relative and the absolute. Conceptual knowledge is relative. The concept contains only that part of the object which is common to it and to others, and any combination of concepts must needs give only an artificial reconstruction of an object. The concept, further, involves a danger in that it generalizes at the same time it abstracts. The extension given it deforms the property essential to it.<sup>20</sup> "Thus the different concepts that we form of the properties of a thing inscribe around it so many circles, each much too large and none of them fitting it exactly."<sup>21</sup> This method serves the purposes of practical life since the function of the intellect is to promote utilities. When a concept is fitted upon a thing it labels the thing and suggests to us in precise terms the kind of action to be directed toward the object. But this knowledge is not scientific, nor is it sufficient for metaphysics. Metaphysics must possess absolute knowledge.

It is in this essay we find Bergson's most complete discussion of the method of absolute knowledge, intuition, which resembles what Spinoza speaks of interchangeably as *intuition* or the *intellectual love of God*. To know an object, says Bergson, we must identify ourselves with it. Absolute knowledge is given by intuition. "By intuition is meant the kind of *intellectual sympathy* by which one places oneself within an object in order to coincide with what is unique in it and consequently inexpressible."<sup>22</sup> Conceptual knowledge is not to be discarded, but is to be kept subsidiary and introductory to intuition. Just as Spinoza bases his intellectual love of God upon scientific knowledge, so Bergson emphasizes science must precede intuition. "On the one hand it will utilize the mechanism of intelligence

<sup>20</sup> *Introduction to Metaphysics* (trans. by T. E. Hulme), p. 19.

<sup>21</sup> *Ibid.*

<sup>22</sup> *Ibid.*, p. 7.

itself to show how intellectual moulds cease to be strictly applicable; and on the other hand, by its own work, it will suggest to us the vague feeling, if nothing more, of what must take the place of intellectual moulds."<sup>23</sup> This intuition establishes a sympathetic relationship between us and the rest of reality; "by the expansion of our consciousness which it brings about it introduces us into life's own domain, which is reciprocal interpenetration, endlessly continued creation."<sup>24</sup>

Spinoza evidently has something similar in mind when he speaks of intuition, or the intellectual love of God. For Spinoza too, science must precede and make possible intuition. Thus it is that inadequate ideas become adequate. For Spinoza also the mind through intuition becomes one with God, without losing its identity in God. To participate in the intellectual love of God is not to be isolated, but rather is to become attached to the totality of being from within. God then thinks in us and through us. Intuitive knowledge envelops time and space. Through intuition the individual mind erases all distinctions of time between the becoming, the after and the now; in it the different become the same, the successive simultaneous, the many one.<sup>25</sup> Grasped in this eternal aspect particular things are seen to be the interpenetration of forces, the explication of what is eternally implicit in God. In this intellectual love of God Spinoza attains to a sympathetic union with reality similar to that which Bergson acquires by means of his intuition. And in so far as one possesses this conscious intuition of all the spatial and temporal relationships

<sup>23</sup> *Creative Evolution*, pp. 177-178.

<sup>24</sup> *Ibid.*, p. 178.

<sup>25</sup> Cf. H. M. Kallen, *William James and Henri Bergson*, p. 110. In this book Mr. Kallen suggests the relation between Bergson and Spinoza which I have attempted to work out in greater detail. In addition to the similarity I have indicated in this paper it is possible to show an essential agreement between Bergson's freedom and Spinoza's necessity; and also between their theories of the mind-body relation.

of existence, he is, to quote Spinoza, "scarcely at all disturbed in spirit, but being conscious of himself, and of God, and of things by a certain eternal necessity, never ceases to be but always possesses true acquiescence of his spirit."<sup>26</sup>

It is evident then that in their outlines of a method for attaining a knowledge of reality as well as in their conceptions of the nature of reality there is a fundamental agreement between Bergson and Spinoza. We have found that for Spinoza the attributes of reality, as man conceives it, are thought and extension, and reality is infinite cogitation and infinite physical agency. For Bergson reality is creative action, it is a movement, and it is "the same inversion of the same movement which creates at once the intellectuality of mind and the materiality of things."<sup>27</sup> We have found that each condemns "practical knowledge" for purposes of philosophy, and that each appeals to a mystical experience which while based upon scientific knowledge transcends analysis and identifies the individual with the undivided flux, with the flow of an eternal becoming reality, *élan vital* or *natura naturans*, which both call God.

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<sup>26</sup> *Ethics*, Part V, Prop. 42, note.

<sup>27</sup> *Creative Evolution*, p. 206.

## PARACELSIUS AS A CHEMIST AND REFORMER OF CHEMISTRY.

PARACELSIUS (1493-1541) was in youth and early manhood a student of the chemical processes and theories prevalent in his time—particularly experienced in the operations of mining and metallurgy of the region in which his early life was spent. To this experience he evidently added by study of the principal authorities upon alchemical knowledge of the time—as references or allusions to them are to be found in his own writings.

The chemists of the period were of two classes—artisans employed in the mines or the working of metals, in pottery, glass, dyeing or similar industries, or mystics striving by obscure and occult means to transmute the baser metals into gold or silver, or to discover the elixir that should prolong life or endow its possessor with perennial youth.

The practical chemists or the artisans in chemical industry were in the early decades of book-printing not addicted to publishing. Their trade recipes and manuals doubtless were in use in the form of manuscripts for their own use but not usually issued for public information. The important pioneer authors in technical chemistry, Birinuccio, George Agricola, Bernard Palissy, were also of the period of Paracelsus, though their works important to the history of chemical science did not appear until after the death of Paracelsus.

The principal chemical authorities extant during his life were the early Greek philosophers—of whom Pliny was the most important compiler, and the works written by or attributed to—for many were apocryphal—the Arabians Gheber and Avicenna, the Italian (?) Arnaldus de Villanova, the German Albertus Magnus, the Englishman Roger Bacon, and the Spaniard Raimundus Lullus (or Lully).

In so far as the chemical knowledge contained in these writers is concerned it appears from the studies of M. Berthelot, that they contained very little not known to Egyptian or Greek writers of the early centuries of our era. The metaphysical philosophy and mysticism of later Greek and Egyptian chemistry had however from Chaldean, Arabian and other Oriental sources been added to and elaborated to such a degree that the chemical writings of the above authors or those written under their names were fantastic, obscure, and often intentionally incomprehensible.

It is evident from the writings of Paracelsus that he was familiar with the chemical processes in use in the mines and metallurgical laboratories of the country in which he lived. His knowledge of the chemistry of his time was extensive and well assimilated. It is also evident that he was familiar with and influenced by the often fantastic speculative theories of Lullus, Arnaldus de Villanova and others respecting the nature of matter and the origins of metals.

Paracelsus wrote no treatises devoted exclusively to chemistry or alchemy. The few which appeared under his name and which answer such description, were forgeries—as judged both by internal evidence and by the evidence of Huser, who, while including them in his collection because they had been so published, characterized them as apocryphal.

Nevertheless in his other writings upon medicine, surgery, or natural philosophy, he includes much chemistry, particularly in the books entitled *De mineralibus*, *De natura rerum*, *Archidoxa*. In this unsystematically arranged and scattered material are recorded many facts not found in earlier writings, and operations more clearly described than previously. One historically important theory, that of the three elements (*tria prima*)—sulphur, mercury, and salt—as constituting principles of all other substances, seems to have been original with him, though using earlier speculations as material for its development.

Historians of chemistry have generally recognized the important influence of Paracelsus upon the development of chemical science in emphasizing its importance to medicine and pharmacology.

Strangely enough, however, it was just in relation to this, his most certain influence upon the development of natural science that his reputation for knowledge, originality, and indeed for honesty, was called in question for more than two centuries. The occasion for this was the appearance of some clever literary forgeries which appeared to place Paracelsus in the position of a plagiarist and to deprive him of his claim as the initiator of the era of chemical medicine. Huser's collection of the philosophical and medical works of Paracelsus, which included to be sure much of doubtful or spurious origin, appeared in 1589-1591.

About ten years later there began to appear a series of treatises by an alleged Benedictine monk—Basilus Valentinus. The publisher of these or at least of the earlier ones was a certain Johann Thölde. Thölde claimed to have discovered and translated into German the Latin manuscript. These works, especially the "Triumphal Chariot of Antimony," attracted immediate and wide-spread attention

because of their real chemical importance at the time. The work mentioned was a real contribution to the chemistry of antimony compounds. The inference from the text was that they were written early in the fifteenth century, therefore a century before Paracelsus.

As the appearance of this work occurred during the period of greatest popularity of the works of Paracelsus, it was soon noticed that there was a remarkable similarity both in matter and form of presentation between much contained in Basil Valentine and in Paracelsus. Like Paracelsus, Basil Valentine had abused the physicians and their authorities,—the mineral remedies practised by Paracelsus were here also advocated. Even the three primary principles, sulphur, mercury, salt, were found in Basil Valentine. The chemical facts were often more clearly described than in Paracelsus. In short, it was evident to critical minds that a plagiarism existed. To be sure, no previous writer had ever mentioned or quoted a Basil Valentine. Nor in fact were the alleged original manuscripts placed in evidence. Paracelsus, if he were the plagiarist, must then have had a monopoly in his access to the works of Basilius. There were indeed writers of the period who expressed disbelief in the authenticity of the find. Generally, however, these came to be accepted as genuine.

From certain passages in the writings it however became evident that they could not have been written as early in the fifteenth century as alleged by the supposed author, for allusions to metal used in type-founding, and to the French disease, made it evident that their date could not be earlier than the end of the fifteenth century. Nevertheless it became quite generally accepted that there had existed a writer who wrote under the name of Basilius Valentinus (though no record of such a name could be found in the register of Benedictines), that he lived before Para-

celsus, and that therefore Paracelsus had stolen his chemistry largely from the supposed monk. It may seem strange that such an hypothesis became so easily accepted, but it should be noted that at the time, a fierce warfare was in progress between the conservative medical profession and the university faculties on the one side, and the rapidly increasing revolutionary party of the Paracelsan school, on the other.

Paracelsus with the more influential and generally more scholarly classes was a name despised and hated. Plagiarism was to be expected from the leader and founder of the new school with its vagaries, fantasies, and charlatany. Against this presumption, the champions of Paracelsus fought at a disadvantage. Eventually also certain statements crept into literature which seemed to confirm the facts of the existence of the alleged Basilius, and so history finally accepted him as a writer previous to Paracelsus. The reinvestigation of this problem may be said to have commenced with the eminent historian of chemistry, H. Kopp, who, beginning by accepting the conventional hypothesis, after half a century's work in the early history of chemistry ended by stating that in his judgment the Basilius Valentinus literature was a forgery or forgeries of the beginning of the seventeenth century, and that in all probability Thölde the publisher was himself the author.<sup>1</sup>

Since Kopp's time, other competent students have contributed to the solution of the problem,—Sudhoff, Ferguson, Lasswitz, and it may now be accepted as certain that no writings under the name of Basilius Valentinus had appeared nor existed either before or during the lifetime of Paracelsus nor indeed prior to the printing of his collected works. The works published and presumably written by

<sup>1</sup> Kopp, *Die Alchemie*, 1885.

Thölde therefore drew not only from Paracelsus, but doubtless also from Agricola and perhaps from still later writers.<sup>2</sup>

The works of two other alleged authors upon chemistry, Joh. and Isaac Hollandus, have also been shown to be post-Paracelsan and were literary forgeries of about the same period as the Basilius literature.

By the relegation of these writings to their true period, the relative importance of the chemical literature of Paracelsus is greatly enhanced. It is to him that we must turn for the initiative to medical chemistry as well as for its propaganda; to him also the credit is due for the first announcement of many interesting though by no means epoch-making chemical facts. Through this revision of history also Paracelsus is freed from the odium of plagiarism and consequent lack of originality which in the minds of the majority of medical or chemical students has so long attached to him.

The interest of Paracelsus in chemistry was on the whole practical, though his adopted philosophy and the need he felt to replace the Galenic and Aristotelian theories by new ones leads him often into theorizing. And to some extent these theories doubtless influenced his practice. Thus in the preparation and purification of his *arcana* or simple extracts or principles of plants and minerals, he seems to have been guided, as a working hypothesis, by his neo-Platonic concept of the spiritual sympathetic relations of all things in the universe toward man and his health. Thus if he could free the real active spirit or principle of the plant from grosser admixtures it should be more efficacious. So he rejected the extremely complex decoctions of herbs of the customary pharmacopœia for his simpler *arcana*.

<sup>2</sup> For a more detailed account of the Basil Valentine forgery cf. Stillman, *Popular Science Monthly*, December, 1912, "Basil Valentine."

It is by no means necessary to assume that all these new remedies he introduced were originated by him. Many of them were, though not authorized by the faculties, in use as popular remedies in certain localities at least, or used by irregular practitioners. Thus mercury preparations mixed with fats had been introduced for external use in certain treatments by Italian physicians previous to Paracelsus. It is nevertheless true that in the extension of the pharmacopœia to a great number of preparations requiring the operations and methods of chemistry for their preparation he exerted his greatest influence upon chemical activity and development. Not only mercury and antimony preparations but preparations of lead, arsenic, copper, and iron entered into his remedies. Opium also seems to have entered into his practice quite largely and the word laudanum seems to have originated with him—whether or no his “laudanum” was an opium preparation, as on that point the doctors disagree.

The name of zinc first appears in the writings of Paracelsus, though that he therefore first named it, is not to be inferred. It was probably at least locally in use in mining regions in which he had studied.

“For that is a metal which fire may subdue and which can be made into an instrument by man. Such namely are gold, silver, iron, copper, lead, tin. For these are generally known as metals. Now there are some metals which are not recognized in the writings of the ancient philosophers nor commonly recognized as such and yet are metals; as *Zincken* (zinc), *Kobaltet* (?), which may be hammered and forged in the fire.”<sup>3</sup>

“There is also another metal called *Zincken*. . . . This is not generally known, it is in this sense a metal of a special kind and from another seed (i. e., origin). Yet

<sup>3</sup> Paracelsus, *Op. fol.* (Strassburg, 1616-18), II, 134, “De mineralibus.”

many metals adulterate (alloy) with it. This metal is itself fusible for it is from three fusible elements (i. e., the three primary elements), but it has no malleability but only fusibility. And its color is different from the colors of others, so that it is not like the other metals as they grow. And it is such a metal that its *ultima materia* is not as yet known to me. For it is nearly as strange in its properties as quicksilver. It admits of no admixture and does not endure metallic manufacture, but stands by itself.”<sup>4</sup>

Mercury (quicksilver), Paracelsus did not consider a true metal. Though of “metallic nature,” it could not be hammered or cast, lacked malleability, but it is of metallic nature because “by chemical art it can be brought to malleability and fashioning” (doubtless meaning in its alloys or amalgams).

The first mention of bismuth is sometimes, though incorrectly, ascribed to Paracelsus, as it is mentioned by Agricola in his *Bermannus*, printed in 1530, and even by a still earlier anonymous writer.<sup>5</sup>

Another observation credited to Paracelsus is the distinction between “alums” and “vitriols” in ascribing to the former an earth as base, and to the latter a metal. This was for that time a logical discrimination, for it was Sir Humphrey Davy who first demonstrated that the so-called “earths” could be reduced to metals hitherto unknown. The term “reduction” (*reduciren*) as applied to the obtaining of metals from their ores is also said to have been first introduced into chemical literature by Paracelsus.

Many other processes not new are described by Paracelsus, and his descriptions are frequently straightforward and with none of the intentional mystification of the great bulk of alchemical writings of the time or of many even

<sup>4</sup> *Loc. cit.*, p. 137.

<sup>5</sup> Cf. Agricola, *De re metallica*, edited by Hoover, p. 433, footnote.

in the century following. That they are not always intelligible is true, but this is rather from the use of terms whose meaning is not now clear, or from careless and hasty writing or editing. The following is an illustration of his better style. It describes the preparation of white lead and vinegar and carbon dioxide gas.

"The mortification (from *mors*, death) of lead consists in converting it into *cerussa* which is also called white-lead (*Bleiweiss*). Its preparation is in two ways, one in medicine, the other in alchemy. Its preparation in medicine is thus—that you hang it (the lead) in thin sheets over a sharp wine-vinegar in a glazed pot. The pot is then well stoppered so that no spirits may volatilize and set in warm ashes, or in winter behind the stove: then you will find in ten to fourteen days good white lead adhering to the sheets, which you may remove with a hare's foot, and again hang the sheets, and do this until you have white-lead enough. The other preparation of white-lead—in alchemy—is like this except that in the vinegar much of the best and finest salmiac is dissolved. That gives a fine and subtle white-lead."<sup>6</sup>

By the first of the two methods mentioned the necessary carbon dioxide gas for the formation of the carbonate must come from the fermentation of the vinegar. This makes a slow process to be sure. In the second process, with the addition of the salmiac, the sal ammoniac as then prepared often consisted of or contained ammonium carbonate which with the acetic acid of the vinegar liberated carbon dioxide in greater quantity than from the fermentation of the vinegar alone. Similar descriptions of this process exist in ancient Greek and Roman writers, though without use of sal ammoniac.

With respect to his theoretical views of chemistry, we

<sup>6</sup> *Op. fol.*, I, 893-4, "De natura rerum."

should naturally expect to find them fanciful and unscientific, and we are not disappointed. They are based upon the theories of his predecessors with such changes as commend themselves to his own preconceptions. Thus he does not deny the possibility of transmutation of the metals. But his practical sense rejects the search for it as a waste of valuable energy otherwise more profitably employed.

"Many have said of alchemy that it is for making gold and silver. But here such is not the aim but to consider only what virtue and power may lie in medicines."<sup>7</sup>

"Not as they say—alchemy is to make gold, make silver: here the purpose is to make arcana and to direct them against diseases."<sup>8</sup>

From the point of view of the history of development of ideas in physical or chemical science it is interesting to find that our word *gas* which was first formulated by Van Helmont as a generalization to include the various elastic fluids which we now call by that name, finds its suggestion in Paracelsus.<sup>9</sup> Though suggested by Van Helmont the term *gas* was slow in making its way. It will be remembered that the celebrated work of Jos. Priestley in the eighteenth century bore the title of *Different Kinds of Air*. Van Helmont (1577-1644) who was strongly influenced by Paracelsus and one of his strong defenders, though differing from him in his views in many respects, tells us that he derives the word *gas* from the Greek *chaos*.<sup>10</sup> This term, however, is used repeatedly by Paracelsus as a generalized term for air, and certainly was familiar to so thorough a student of Paracelsus as Van Helmont manifestly was.

Thus Paracelsus says, "And they are born from the elements.... as for instance out of the element *terrae*

<sup>7</sup> *Op. fol.*, I, 149, "Fragmenta medica."

<sup>8</sup> *Op. fol.*, I, 220, "Paragramm."

<sup>9</sup> See Strunz, *J. B. van Helmont* (1907), p. 30, and E. O. von Lippmann, *Chemiker-Zeitung*, XXXIV, p. 1.

<sup>10</sup> J. B. van Helmont, *Opera Omnia*, 1682, II, 132.

(earth) its species, and out of the element *aqua* (water) its species, out of the element *ignis* (fire) its species, out of the element *chaos* its species.”<sup>11</sup>

“Thus all superfluous waters run into their element called the sea (*mare*); whatever is terrestrial (earthy) returns to its element called earth (*terrae*); what is igneous into the element fire (*ignis*); and what is aerial (*aereum*) that runs into its element *chaos*.<sup>12</sup>

“The elements in man remain indestructible. As they have come to him so they come from him. What he has received from the earth goes back to the earth and remains such so long as heaven and earth stand; what he has in him that is water that becomes water again, and no one can prevent it; his *chaos* goes again into the air (*Luft*), his fire to the heat of the sun.”<sup>13</sup>

Thus “chaos” used by Paracelsus for air became “gas” to his disciple Van Helmont, though even in Van Helmont’s time the real differences between gases were so little understood that the value of the generalized term was not appreciated at the time. It required another century of accumulated facts to make it necessary.

It would be interesting to know if Paracelsus really discriminated between air and the vapor of water, or other gases. The following passage is not conclusive, being capable of different interpretations. It is nevertheless of interest.

“When, from the element water, air (*Luft*) is to be separated, that takes place by boiling, and so soon as it boils, the air separates from the water and takes with it the lightest substance of the water, and in so much as the

<sup>11</sup> *Op. fol.*, I, 269, “Labyrinthus medicorum.”

<sup>12</sup> *Op. fol.*, I, 291, “Das Buch von den tartarischen Krankheiten.”

<sup>13</sup> *Chir. Bücher*, fol. 378, “Von offenen Schaden.”

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water is diminished so according to its proportion and quantity is the air also diminished."<sup>14</sup>

So strong an adherent as Paracelsus of the neo-Platonic notions of the interrelation of all things in the universe, would naturally be interested in the prevalent theories of the nature of matter and of its changes. That the causes which influence health and disease might be understood it was necessary that the nature of chemical changes, and the constitution of matter should be understood.

Hindu, Greek, Arab, and later philosophers had speculated upon the nature of matter with the result of the final crystallization in medieval philosophy of the theory of the four elements, fire, air, earth, and water. Upon this was founded the Galenic doctrine of the four humors in the human organism, and the theory had become in the medieval Aristotelianism petrified into infallible dogma.

Medieval alchemists had as the result of the study of metallurgical chemistry, of observations upon the occurrence of the metals in the earth and the changes to which they are subject, from time to time developed certain independent notions of the nature of matter. The strange properties of mercury and of its alloys with other metals, the occurrence of sulphur in many ores and its appearance or disappearance in the treatment of these ores, had given rise to speculations as to the possible relations of these substances to the growth or development of the metals in the earth. From such phenomena and from the peculiar properties of many alloys of the common metals arose doubtless the hopes of transmutation of base metals into purer or more precious metals.

Raimundus Lullus and other early alchemists had assumed therefore that mercury and sulphur were present in all metals. In the literature of the Middle Ages or early

<sup>14</sup> *Op. fol.*, I, 791, "Archidoxa."

Renaissance the mercury or mercuries, and the sulphur or sulphurs were not the elements sulphur and mercury as we understand them but were supposed to be substances related to these elements and capable of influencing the colors, fusibility, behavior toward fire etc., of the metals of which they were constituent principles. There was no agreement among writers of the time however, as to the properties of these elementary substances, nor as to their role or function in the metals or their ores.

Upon this vague and variable foundation, this inheritance from the alchemists, Paracelsus constructed his more comprehensive and consistent theory of the three elements, sulphur, mercury, and salt, which was destined to become the most influential theory of the constitution of matter until gradually replaced by the phlogiston theory in the eighteenth century.

Paracelsus recognized the four Aristotelian elements or principles—earth, air, water, fire—but considered them also as consisting of the three primary elements (*tria prima*). To his three elements he assigned more definite and better characterized functions than had previously been recognized. Sulphur was the combustible principle in all substances, not merely in the metals; mercury that which imparted the property of liquidity, or fusibility, and volatility; and salt that which determined the non-volatility and incombustibility of substances.

"For all that fumes and disappears in vapors is mercury; all that burns and is consumed is sulphur; all that is ashes is also salt."<sup>15</sup>

These three constituents of all matter are not, however, to be understood as answering to the definition of elementary substances as at present accepted. Like the Aristotelian elements they also typified qualities or principles. Thus

<sup>15</sup> *Op. fol.*, I, 898.

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sulphur was not a substance of constant and invariable properties entering into the constitution of other substances, but varied with the substance which contained it. To use the words of Paracelsus—"For as many as there are kinds of fruits—so many kinds are there of sulphur, salt, and so many of mercury. A different sulphur in gold, another in silver, another in iron, another in lead, zinc, etc. Also a different one in sapphire, another in the emerald, another in ruby, chrysolites, amethysts, magnets, etc. Also another in stones, flint, salts, spring-waters (*fontibus*), etc. And not only so many kinds of sulphur but also so many kinds of salt,—different ones in metals, gems, etc.... And the same with mercuries, different ones in the metals, others in gems, and as many as there are species—so many mercuries. And yet they are only three things. Of one nature is sulphur, of one nature salt, of one nature mercury. And further they are still more divided, so that there is not only one kind of gold but many kinds of gold, —just as there is not only one kind of pear or apple but many kinds. Therefore there are just as many different kinds of sulphurs of gold, salts of gold, mercuries of gold."<sup>16</sup>

We should therefore consider the three elementary principles of Paracelsus and his followers rather as generalizations of certain properties inherent in and common to matter, than as elements in the modern sense. The importance that this theory possessed for his time, was that it was more closely related to phenomena observed in chemical experimentation than the concept of the Aristotelian elements. Consequently it became the dominant hypothesis as to the nature of matter until in the seventeenth century the keen critical analysis of Robert Boyle laid bare its inadequacy and unscientific basis. Boyle indeed it was who

<sup>16</sup> *Op. fol.*, II, 132, "De mineralibus."

first clearly enunciated the modern definition of an element as a substance which cannot by our efforts be resolved into simpler constituents, though he did not venture to apply this definition to any particular substance.

The great service of Paracelsus to chemistry was not in any epoch-making discovery nor in any development of theory of permanent value, but in opening a new and great field for chemical activity in the application of chemistry to the preparation of mineral and vegetable remedies. He not only put into use many known chemical substances in his practice, but he advocated insistently and forcefully the necessity of the knowledge of chemistry to the physician, and emphasized the value of experiment as against dependency upon the records of the ancients.

"But because you are ignorant of alchemy you are also ignorant of the mysteries of nature. Do you think that because you have Avicenna and Savonarola, Valescus, and Vigo that you therefore know everything? That is but a beginning.... That which Pliny, Dioscorides, etc. have written of herbs they have not tested, they have learned it from noble persons who knew much about their virtues and then with their smooth chatter have made books about it.... Test it and it is true. But you do not know it is true,—you cannot carry it out, you cannot put to proof your author's writings. You who boast yourselves *Doctores* are but beginners.

"What do Hermes and Archelaus attribute to vitriol?—Great virtue,—and it is true such virtue is in it. But you do not know wherein it lies, neither in the green nor in the blue vitriol, and yet you call yourselves masters of natural things and do not know that! You have read so that you know what is there written but you can make no use of it.

"What do other chemists and philosophers say about

the powers of mercury? Much indeed and it is true. But you do not know how to prove it true.... You do nothing but read, 'that is in this, this is in that, that is black and this is green—and further than that I can (God help me) do nothing, thus I find it written.' Do you think I have laid my foundation (of medicine) without reason in the arts of alchemy? Tell me who are to be trusted in the knowledge of the virtues of things in nature, those who have written and not known how to make proof, or those who have the knowledge to make proof—but have not written? Is it not true that Pliny has never shown any proofs? What did he write then?—That which he had learned from the alchemists. And so you if you do not know and recognize who these are—you are but a lame physician."<sup>17</sup>

Another illustration of his argument for the value of experiment and his criticism of those who depended solely upon the ancient authorities is the following (he is discussing the preparation of medicinal principles):

"The separation of those things that grow from the earth, and are easily combustible, as all fruits, herbs, flowers, leaves, grass, roots, woods, etc., takes place in many ways. Thus by distillation is separated from them first the phlegm (i. e., a watery distillate); then the mercury (i. e., volatile or gaseous products) and the oily portion; third its resin; fourth its sulphur (that which burns); and fifth its salt (non-volatile and uncombustible, or the ash). When this separation has taken place by chemical art, there are found many splendid and powerful remedies for internal and external use.

"But because the laziness of the supposed physicians has so obtained the upper hand and their art serves only for display, I am not surprised that such preparations are

<sup>17</sup> *Op. fol.*, I, 221-2, "Paragranum."

quite ignored and that charcoal (i. e., fuel) remains cheap. As to this I will say that if the smith could work his metals without the use of fire, as these so-called physicians prepare their medicines without fire, there would be danger indeed that the charcoal-burners would all be ruined and compelled to flee.

"But I praise the spagyric (chemical) physicians, for they do not consort with loafers or go about gorgeous in satins, silks and velvets, gold rings on their fingers, silver daggers hanging at their sides, and white gloves on their hands, but they tend their work at the fire patiently day and night. They do not go promenading, but seek their recreation in the laboratory, wear plain leathern dress and aprons of hide upon which to wipe their hands, thrust their fingers among the coals, into dirt and rubbish and not into golden rings. They are sooty and dirty like the smiths and charcoal-burners, and hence make little show, make not many words and gossip with their patients, do not highly praise their own remedies, for they well know that the work must praise the master, not the master his work. They well know that words and chatter do not help the sick nor cure them. Therefore they let such things alone and busy themselves with working with their fires and learning the steps of alchemy. These are distillation, solution, putrefaction, extraction, calcination, reverberation, sublimation, fixation, separation, reduction, coagulation, tincion, etc."<sup>18</sup> The type of chemical physician here alluded to existed among the surgeons of Strassburg, exemplified in Brunschwyg's *Liber Destillandi* (1500).<sup>19</sup>

This opening up of a new field of chemical activity which promised so much of importance in its development and which touched directly upon the field of the practice of

<sup>18</sup> *Op. fol.*, I, 906, "De natura rerum."

<sup>19</sup> See article by the present writer in *The Scientific Monthly*, February, 1918, p. 167.

medicine, the most important field of natural science at that period, and the appeals of Paracelsus to abandon the search for the transmutation of metals and other vain goals of the alchemists, met almost immediate response among those students who were interested in the study of nature—and there were many such—and it was indeed from the chemists that the most enthusiastic and productive followers of Paracelsus arose. A new and important impulse had been imparted to chemistry, so that in spite of the fact that no great chemical discoveries or generalizations can be attributed to Paracelsus he may yet with justice be called a reformer of chemistry.

It is interesting to contrast the work of Paracelsus with that of his great German contemporary, Georgius Agricola (Georg Bauer), 1494-1555. Agricola was also medically trained as well as being thoroughly versed in mining and metallurgy.

His descriptions of mining and of metallurgical and chemical facts and processes are systematic, orderly, and generally clear and comprehensive. His theory was based upon the prevalent Aristotelian ideas. His published work upon mining and metallurgy possesses more permanent interest from a scientific point of view than the writing of Paracelsus because he confined himself to the task of presenting the established facts and processes of his specialty in clear detailed description, so that it might be of use for others who should follow in the same line of work. Many chemical facts and processes are mentioned that appear also in Paracelsus, but as with Paracelsus, so with Agricola there is no pretension that these are original with the author. It is interesting to note that neither one of these two men—the most important of their century in chemistry—seems to have been aware of the existence of the other. Agricola in Saxony and Paracelsus in Switzerland and

Austria possessed many interests and much knowledge in common, but Agricola's great work appeared after the death of Paracelsus, while those works of Paracelsus which contain most of his chemistry did not appear in print until after the death of Agricola. It is therefore not surprising that neither knew of the other. Agricola's great work *De re metallica* remains a classic in technical chemistry, while Paracelsus has left little that is of permanent interest to chemical science. But the reform of chemistry was not the main aim of the efforts of Paracelsus, to him that was but subordinate to his great ambition, the revolution of medicine.

Yet the influence of Paracelsus upon chemistry was epoch-making. By pointing out a rational and promising field for chemical activity and by his own successful application of chemically prepared remedies he inaugurated a movement which has continued without interruption and with increasing importance to the present day.

From his time on a new vitality was infused into chemical thought and activity. Instead of the passive acceptance of ancient authorities and traditions, there began a struggle for progress through experiments and their interpretation, often indeed unscientific and illogical at first, but nevertheless only from such beginnings of independent thought and initiative was the scientific spirit to be developed.

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## CRITICISMS AND DISCUSSIONS.

### THE SON OF MAN.

The Galilean founders of Christianity (who were Jews by religion, although they may have been descendants of the Aryans deported by Tiglath-pileser IV to Galilee in 738 b. c.)<sup>1</sup> spoke Aramaic. *Talitha cumi* (Mark v. 41) and other phrases attributed to Jesus are Aramaic. The *Logia* (*Q*)<sup>2</sup> from which the sayings of Jesus in Matthew and Luke are derived were Aramaic.<sup>3</sup> *Bar-nâshâ*, son of man, is the common Aramaic expression for *man*. Similarly Heb. *ben-adám* denotes an individual of the *genus homo*. The Greek Bible renders it *uios tov árþpóπov*, the same expression which we find in the New Testament.

The original meaning of *bar-nâshâ* was not *filius hominis*, but *filius viri*. A person who is the *son of a man*, in contradistinction to an individual who is the *son of a nobody*, is a gentleman.<sup>4</sup> The great Irish Assyriologist Edward Hincks, who died in 1866, recognized long ago that the cuneiform phrase *mâr lâ mâman*, a son of a nobody, indicated a man of low origin.<sup>5</sup> Cicero used the expression *filius*

<sup>1</sup> See my paper "The Aryan Ancestry of Jesus" in *The Open Court*, No. 635 (April, 1909), p. 199.

<sup>2</sup> See *The Open Court*, No. 653 (October, 1910), pp. 603, 618.

<sup>3</sup> See Wellhausen, *Einleitung in die drei ersten Evangelien*, second edition (Berlin, 1911), p. 78. On page 162 Wellhausen emphasizes the artistic and literary form of the *Logia*. Of Adolf Deissmann's view that the Sayings are on a par with the papyri scribbled by illiterates Wellhausen remarks, "It is hardly possible to make a more injudicious statement" (*Urteilsloses kann kaum geäussert werden*). Cf. my remarks in the *Transactions of the Third International Congress for the History of Religions* (Oxford, 1908), Vol. 1, p. 303, n. 4.

<sup>4</sup> Cf. Gesenius's *Hebr. Handwörterbuch*, sixteenth edition (1915), p. 53b, line 2.

<sup>5</sup> See *Records of the Past*, Vol. 3, p. 46, n. 2 (London, 1874); E. Schrader, *Keilinschrifliche Bibliothek*, Vol. 1, p. 65, line 81 (Berlin, 1889); Delitzsch, *Assyr. Handwörterbuch* (Leipsic, 1896), p. 419b.

*terrae* which corresponds in some respects to the Heb. 'am ha-'ārg, unlearned.

In Hebrew, *bēnē-'adám* = *filii hominis* means *homines*, and *bēnē-'ish* = *fili viri* denotes *gentlemen*. A Maccabean poet (c. 163 b. c.) calls the Hellenizing members of the Jerusalem aristocracy *bēnē-'ish*, lords. Luther renders this correctly in Psalm iv. 2 *Liebe Herren, dear sirs*, although the Latin Bible has *filii hominum*.<sup>6</sup> Our Authorized Version has *O ye sons of men*, nor has this mis-translation been corrected in the Revised Version. In Psalm xlix. 2 the Authorized Version translates Heb. *gam-bēnē-'adám gam-bēnē-'ish* correctly *both low and high*. In Psalm lxii. 9 we find *Ak-hébl bēnē-'adám, kazáb bēnē-'ish*, Men of low degree are but vanity, men of high degree an illusion. Heb. *kazáb* denotes originally a wady which dries up during the summer. The meaning *lie* is secondary, not *vice versa*.

In the Code of Hammurabi (c. 2100 b. c.) *mâr-amîli*, son of a man, is a *full-born* man, while *mushkînu*, which appears in Hebrew as *miskén*, and in French as *mesquin*, is a *free-born* man. *Mushkînu* is not a serf or bondman, but a plebeian or commoner, whereas *mâr-amîli* is a patrician or nobleman. In the Old Testament, *miskén* does not mean *poor*, impecunious, but *humble*, of low origin. The *poor and wise child* in Eccl. iv. 13 alludes to Alexander Balas,<sup>7</sup> who was a boy of humble origin, but a friend of the Jews. *Wise* is used for *godly*, religious, and *foolish* for *ungodly*, irreligious.<sup>7</sup> Assyr. *mushkînu* is connected with Arab. *kâna*, *yakinu*, and *istakâna*, to submit, to be humble.<sup>8</sup> Assyr. *amîlu* is derived from the stem of Heb. 'amál, labor. For the preservation of the *a*-vowel after the initial 'Ain we may compare *atûdu*, he-goat; *agrabu*, scorpion; *adî*, until. *Amîlu* is a form like Heb. *asîr*, captive, or *nâbî*, prophet; but *amîlu* does not mean *worked*, but *working*. The form *qatîl* may have the meaning of *qâtîl*,<sup>9</sup> so that Assyr. *amîlu* may be equivalent to Arab. 'âmil. Nor does *amîlu*, worker, denote a *laborer*, but an *employer of labor*, just as we say that a captain *works* a ship, or that a captain of industry *works* a number of mines. Two hundred

<sup>6</sup> I have explained Psalm iv in *The American Journal of Semitic Languages*, Vol. 26, p. 6.

<sup>7</sup> See Haupt, *Ecclesiastes* (Baltimore, 1905), p. 36, n. 9; *The Book of Micah* (Chicago, 1910), p. 53, n. ‡.

<sup>8</sup> See my paper on Psalm lxviii in *The American Journal of Semitic Languages*, Vol. 23, p. 226, n. 13.

<sup>9</sup> See W. Wright, *A Grammar of the Arabic Language*, third edition (Cambridge, 1896), Vol. 1, p. 186, B.

years ago the term *manufacturer* was used in the sense of *workman*. In our terms *telegraph-operator* and *coal-operator* the word *operator* has two entirely different meanings. The Spanish *hacienda*, landed estate, manufacturing or other establishment in the country, is derived from the Lat. *facienda*, things to be done. In Scotland the manager of an estate is called *factor*, lit. *doer*, maker. This is also the original meaning of Assyr. *amīlu*.

The definition of Assyr. *mār-amīli*, son of a man, as *patrician* and *mushkinu* as *plebeian* was correctly given by the late Prof. R. F. Harper in his translation of the Code of Hammurabi;<sup>10</sup> but Winckler explained *mushkinu* as *freedman*,<sup>11</sup> Delitzsch as *bondman*, and Hommel as *monk* or *Levite*.<sup>12</sup> Harper rendered *amīlu* by *man* or *person*, and *mushkinu* by *freeman*, but he added (*op. cit.*, p. xii): In a few places it is almost necessary to translate *gentleman* as over against *freeman*. The Sumerian equivalent of *mushkinu* was *mashda*. Eduard Meyer in the third edition of the first volume of his *Geschichte des Altertums* (p. 578) regards *mār-amīli* as a *free-born man*; but the *mushkinu* is a *free-born man*, and the *mār-amīli* a *full-born man* or *gentleman*.<sup>13</sup> A man may be free-born without being well-born. The term *gentleman* may, of course, be used for *man* in general. One of my colored servants once told me that the colored gentleman of the man next door wanted to see me. Few of us realize that *Mr.* meant originally *master*.

On the other hand, *baron* meant originally no more than *man*, but gradually the word came to denote a *strong* or *powerful man*, and then a *magnate*. In Italian *barone* signifies not only *baron* and *husband* (cf. the English legal phrase *baron and feme* = *husband and wife*) but also *scoundrel*, *vagabond*, *rascal*. Assyr. *amīlu* and *mushkinu* may be compared to the ancient Irish *aires* who were of two classes, viz., the *flaiths*, who possessed ancestral land, and the *bo-aires* (i. e., *cow-aires*; cf. Lat *bos*) who possessed only cows and other chattels. Both classes were freemen, and the king was

<sup>10</sup> R. F. Harper, *The Code of Hammurabi* (Chicago, 1904).

<sup>11</sup> Hugo Winckler, *Die Gesetze Hammurabis* (Leipsic, 1904).

<sup>12</sup> Fritz Hommel, *Grundriss der Geographie und Geschichte des Alten Orients* (Munich, 1904), p. 236.

<sup>13</sup> Also in Egyptian the phrase *the son of a man* denotes a *full-born man*, and in certain prophetic texts this term is used of a Messianic king; see Hugo Gressmann, *Altorientalische Texte und Bilder zum Alten Testament* (Tübingen, 1909), Vol. 1, p. 206, n. 1. I am indebted for this reference to Dr. Albright. For the ancient Egyptian prophetic texts cf. Eduard Meyer, *Geschichte des Altertums*, Vol. 1, third edition (Stuttgart, 1913), § 297.

elected by them. The flaihs or lords kept slaves and had hamlets with laborers (cf. *Encyclopædia Britannica*, 11th edition, Vol. 3, p. 422b; Vol. 14, p. 768a).

The word *man* is used in German for the impersonal subject. Instead of *you say* or *one says* the Germans say: *man says*. Also *on* in French *on dit* represents the Latin *homo*. In 1 Sam. ix. 9 we read: *Formerly, when a man in Israel went to inquire of God, he would say, Come, let us go to the seer; for he that is now called a prophet, was formerly called a seer.* It might be well to add in this connection that the term for *prophet*, Heb. *nabi*, means originally *one who is caused to speak*; the verb *hinnabē*, to prophesy, is semi-passive.<sup>14</sup> The word for *seer*, on the other hand, denotes primarily a *scryer* or crystal-gazer.<sup>15</sup>

Our Authorized Version occasionally uses *man* in cases where the Hebrew has an impersonal phrase. In 2 Kings xxi. 13 our English Bible says: *I will stretch over Jerusalem the line of Samaria* [cf. 2 Sam. xvii. 13] *and the plummet of the House of Ahab, and I will wipe Jerusalem as a man wipeth a dish, wiping it and turning it upside down.* The original text has simply *as one wipes a dish*, but the rendering *as a man wipeth a dish* is said to have helped an American bride to induce her husband to assist her in washing the dishes. She had tried in vain to persuade him to help her; finally she said, even the Bible expected a man to wipe dishes, and her husband consented to do this work if she had any Scriptural authority for her demand. She called his attention to 2 Kings xxi. 13, and he submitted.

In the cuneiform proverb *Tallik tashshâ eqil nakri, illik ishshâ eqilka nakru*, Thou didst go and take the field of a stranger, the stranger came and took thy field,<sup>16</sup> the Sumerian original has *gish-gin-e mun-gur asha lu-kurâ-ge, ni-gin un-gur asha-zu lu-kura*, A man goes and takes the field of another, the other one goes and takes thy field.<sup>17</sup> We could also use the second or the first persons in this

<sup>14</sup> See my paper "The Religion of the Hebrew Prophets" in the *Transactions of the Third International Congress for the History of Religions* (Oxford, 1908), Vol. 1, p. 271.

<sup>15</sup> See my paper "Crystal-gazing in the Old Testament" in the *Journal of Biblical Literature*, Vol. 36, p. 88.

<sup>16</sup> This was correctly translated long ago by Sir Henry Rawlinson; contrast Jules Oppert, *Grande Inscription du Palais de Khorsabad* (Paris, 1863), p. 289.

<sup>17</sup> See my paper on the impersonal construction in Sumerian in Bezold's *Zeitschrift für Assyriologie*, Vol. 31.

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case. We could say: *If you go and take the field of somebody else, he may go and take your field*, or: *If I go and take the field of somebody else, he may go and take my field*. For *I try to do my best* we may say *One tries to do one's best* or *A man tries to do his best*. In vulgar parlance *fellow* is used for *man*: *Don't be hard on a fellow* means *Don't be hard on me*. The statement *A man cannot work at home if his wife insists on having the house full of guests* may be interpreted as a personal experience.

In the same way we find *son of man*, the Aramaic term for *man*, used in the Gospel for the pronoun of the first person. In Matt. viii. 20 Jesus says: *The foxes have holes, and the birds of the air have nests, but the son of man has not where to lay his head*. Here *son of man* = *man* is equivalent to *I*. It does not denote the Messiah. It was subsequently interpreted in this way, probably on the basis of Matt. xxvi. 64 where the passage Dan. vii. 13 is alluded to, but this was not the original signification. We read in Matt. xxvi. 64: *Ye will see the son of man sitting at the right hand of power and coming on the clouds of heaven*. Also in Dan. vii. 13 we must read *on the clouds of heaven*, not *with*; the Septuagint has ἐπὶ τῶν νεφελῶν. Wellhausen states, Smend had called his attention to the fact that the man in the Danielic passage ascended to heaven on the clouds.<sup>18</sup> The reading 'al, on, instead of 'im, with, was suggested long ago by Nestle.<sup>19</sup> We must also follow the Septuagint in reading the perfect ātā (= ἤρχετο) instead of the participle ātē (Θ, ἤρχόμενος). *Atā-(hā)wā* has the meaning of a pluperfect, *he had arrived or ascended*.

The phrase *kě-bar-nâshâ*, like a son of man, means *one looking like a man*. Some one might feel tempted to read *bě-bar-nâshâ* instead of *kě-bar-nâshâ*, and regard this *bě* as equivalent to the Arabic *bi* after the *īdhâ 'l-mufâja'ati*, the *lo!* of surprise.<sup>20</sup> For *behold, a man came forward*, you find in Arabic: *īdhâ bi-râjulin qad-âqbala*. In Hebrew, *ra'â*, to see, may be construed with *bě*. But *arû*, behold, occurs four times in the preceding verses of Daniel vii, and in none of these cases is it followed by *bě*. Apart from the introductory formula *hâz̄ hâwêth bě-hezwê lâlêyâ*, I saw in the night-visions,

<sup>18</sup> See Wellhausen's work cited above, in n. 3, p. 86; on p. 126 he renders again: *with the clouds*.

<sup>19</sup> E. Nestle, *Marginalien* (Tübingen, 1893), p. 40.

<sup>20</sup> According to Brockelmann's comparative syntax of the Semitic languages (Berlin, 1913), p. 36, the preposition *bi* after *īdhâ* means originally *at, with*.

the two verses Dan. vii. 13, 14 consist of six lines with  $3 + 2$  beats,<sup>21</sup> which may be translated as follows:

- 13 And lo! on the clouds of heaven  
He came to the Agèd Man,  
14 To him was given dominion,  
The peoples, nations, and races  
His dominion is everlasting,  
His rule is for all generations,<sup>22</sup>
- had arrived one like a man;  
and was brought before Him.  
and glory, and rule;  
should be subject to him;  
and will not pass away;  
and will not be destroyed.

The man whom Daniel in his vision saw ascending to heaven on a cloud does not represent the ideal and glorified people of Judea<sup>23</sup> or Michael, the guardian angel of the Jews, but the savior of Judea, Judas Maccabæus. The Book of Daniel was written about the beginning of the year 164 B. C. At that time Judas Maccabæus had defeated the Syrian armies under Apollonius, Seron, Ptolemy, Nicanor, Gorgias, Lysias.<sup>24</sup> Every nation told of the battles of Judas (1 Macc. iii. 26). The appearance of the hero is said to be *kē-bar-nâshâ*, like a man, because in his apotheosis he was transfigured. At the beginning of the Chaldean Flood tablet, Gilgamesh expresses his surprise that the appearance of his ancestor Hasis-atra, who had been translated to the gods, was unchanged.<sup>25</sup> He looked *kē-bar-nâshâ*, like a man.

Although *son of man* = *man* in this Danielic passage refers to the savior of the Jews, the use of this term in the Gospels for the Messiah is secondary.<sup>26</sup> In the Aramaic original of the *Logia* the phrase *bar-nâshâ*, son of man, simply meant *man*, but this could be used for *some one* and also for the first person.

The first Orientalist who took the term *filius hominis* in the sense of *homo* was the Archbishop of Aix, Gilbert Génébrard, who died in 1597. He referred for Matt. xii. 32 to 1 Sam. ii. 25. The passage in the Gospels is: *Whosoever speaks a word against the son of man (i. e., a man) may be forgiven, but whosoever speaks*

<sup>21</sup> We may compare the anapestic pentameter in Browning's *Saul* and Sir Walter Scott's *Proud Maisie is in the wood, walking so early* or P. B. Shelley's *One word is too often profaned | for me to profane it.* See Haupt, *The Book of Micah* (Chicago, 1910), p. 22, n. 1, and p. 66, n. 4.

<sup>22</sup> For the restoration of this hemistich cf. Dan. iii. 33.

<sup>23</sup> See Wellhausen, *op. cit.*, p. 91 and p. 126, n. 1.

<sup>24</sup> Cf. Hastings' *Dictionary of the Bible*, Vol. 3, p. 182, iii.

<sup>25</sup> See my translation of the introductory lines of the cuneiform account of the Deluge in the *Journal of the American Oriental Society*, Vol. 25, p. 75; cf. Vol. 38, p. 61.

<sup>26</sup> Cf. Wellhausen, *op. cit.*, p. 128.

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against the Holy Spirit, will not be forgiven.<sup>27</sup> The Old Testament parallel cited by Génébrard is: *If a man sin against another man, the gods may decide,<sup>28</sup> but if a man sin against Jahveh, who is to pray in aid of him?*<sup>29</sup>

Also the father of international law, Hugo Grotius, who died in 1645, maintained that the *son of man* in Matt. xii. 32 (*whosoever speaks a word against the son of man*) did not refer only to Christ, but to any man including Christ. He explained his view more fully in his annotation *ad* Matt. xii. 8, *The son of man is lord of the sabbath-day*, i. e., *man is above the sabbath.*<sup>30</sup>

Grotius's theory was elaborated by a German clergyman, Pastor Johann Adrian Bolten, of Altona, who died in 1805.<sup>31</sup> He said, if Jesus used the term *son of man* for the first person, it must be explained in the same way as the use of the German indefinite *man* instead of the first person.

Prof. Arnold Meyer, of the University of Zurich, emphasized Bolten's merits in his interesting little book *Jesu Muttersprache* (Freiburg i. B. and Leipsic, 1896). He said, however, that it was well-nigh ridiculous to explain the term *son of man* as equivalent to *some one* in apocalyptic passages like Matt. xxiv. 27 or xxvi. 64. The first passage reads: *As the lightning comes out of the east, and shines even unto the west, so shall also the coming of the son of man be.* The second verse is: *Ye will see the son of man sitting at the right hand of power, and coming on the clouds of heaven.*

We must remember, however, that the indefinite *some one* may be a veiled allusion to a very high personage. In Est. iv. 4 Mordecai tells Esther, *If thou refuse to intervene, help will come to the Jews from another place, or from another quarter*, i. e., from the Supreme Being, just as some one might say in Washington, The Secretary of State was in favor of it, but Somebody Else objected, alluding to the President. In my *Book of Esther* (Chicago, 1908), p. 41, I have quoted a number of passages from Anthony Hope's novel *Tristram of Blent*, e. g., *And if by a miracle the prime minister said yes, for all I know somebody else might say no. This dark*

<sup>27</sup> Cf. Wellhausen, *op. cit.*, p. 66.

<sup>28</sup> We must read *u-fillelā* instead of *u-fillelō*.

<sup>29</sup> That is, become an advocate for him.

<sup>30</sup> Cf. Wellhausen, *op. cit.*, p. 129.

<sup>31</sup> Wellhausen (*op. cit.*, p. 34) points out that it was a German clergyman, C. G. Wilke, who showed nearly a hundred years ago (1826) that Matthew was based on Mark (cf. also *op. cit.*, pp. 109, 148, 154, 156).

reference to the Highest Quarter caused Southend to nod thoughtfully. In another passage we find: *There was now not only the very grave question whether the prime minister—to say nothing of Somebody Else—would entertain the idea.* A third passage reads: *The last words had presumably reference to the same quarter that Lady Evenswood had once described by the words "Somebody Else."* The personage alluded to is, of course, Queen Victoria.<sup>32</sup>

When the Pythagoreans said *airos ἔφα, ipse dixit*, they did not show any disrespect for their master. The Arabic grammarians say that the indefinite *-mâ* is used with an intensifying force.<sup>33</sup> I believe, however, that this *-mâ* is not indefinite, but identical with the Assyrian emphatic *-ma* which appears in Hebrew as *-nâ*.<sup>34</sup> The Arabic grammarians also say that an indefinite cognate accusative is employed for strengthening or magnifying, e. g., *When the earth will be shaken with a shaking*, i. e., *shaken violently* (Arab. *idhâ rijjati 'l-árdú rájjan*).<sup>35</sup> But the intensity depends here on the repetition, not on the indefiniteness. We use *some* now for *great*, splendid. Some years ago a Baltimore furniture dealer exhibited a fine bedstead with the laconic sign *Some Bed*.

The rationalistic theologian Professor Paulus, of Heidelberg, who died in 1851, pointed out that, if the original meaning of the phrase the *son of man* was simply *man*, the followers of Jesus combined this term with Dan. vii. 13 describing the coming of one *like a son of man* in the clouds of heaven, and regarded it as a designation of the Messiah. Paulus referred to Psalm lxxx. 17:

Be Thine arm o'er the man at Thy right hand,<sup>36</sup>  
o'er the son of man Thou hast raised.

Here both *man* and *son of man* are supposed to denote the Jews at the beginning of the Maccabean period, but the Targum, says Paulus, refers the *son of man* to the Messiah.<sup>37</sup> However, it is not true that

<sup>32</sup> Dr. Ember has called my attention to the fact that the Egyptian indefinite pronoun *taw*, which corresponds to the German *man*, is often used as a respectful designation of the king; See Erman's *Aegyptische Grammatik*, third edition (Berlin, 1911), § 285.

<sup>33</sup> See Wright's Arabic grammar (cf. above, n. 9), Vol. 2, p. 276, B.

<sup>34</sup> See Haupt, *The Book of Esther* (Chicago, 1908), p. 49, 13.

<sup>35</sup> See Wright's Arabic grammar (cf. above, n. 9), Vol. 2, p. 55, A.

<sup>36</sup> We must read *liminéka*; cf Psalm cx. 1 and my translation of Zech. vi. 13 in the *Journal of Biblical Literature*, Vol. 32, p. 113; also the explanation of Psalm cx. 4 in my paper "The Coronation of Zerubbabel" in Vol. 38 of the same journal and my translation of Psalm cx in the *Journal of the Society of Oriental Research*, Vol. 2, p. 81 (Chicago, 1918).

<sup>37</sup> See Arnold Meyer, *Jesu Muttersprache* (1896), pp. 148, 159.

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the Targum explains *son of man* in verse 17 (Heb. verse 18) as the Messiah; the Targum has *mâlkâ měshîhâ* for *ben* in verse 15 (Heb. verse 16). Nor does *the man at the right hand of JHVH* and *the son of man whom He has raised* refer to the Jews; the man whom the poet has in mind is the savior of the Jews, Judas Maccabaeus.

I cannot discuss all the passages containing the term *son of man*. Additional details may be found in Cheyne-Black's *Encyclopædia Biblica*, but Prof. Nathaniel Schmidt's excellent article on the "Son of Man" (*op. cit.*, cols. 4705-4740) should be supplemented by Wellhausen's remarks in § 13 of his introduction to the first three Gospels (1911).<sup>38</sup> Wellhausen says he agrees now with Eerdmans, of Leyden, and Lietzmann, of Jena, in denying that Jesus called Himself the *son of man*. This does not mean that Jesus did not use the phrase for the pronoun of the first person, but that He did not employ the term to designate Himself as the Messiah. In several passages we find the *son of man* where the parallels have the pronoun of the first person (e. g., Mark viii. 38; Luke ix. 26 and Matt. x. 33; also Luke vi. 22 and Matt. v. 11).<sup>39</sup> The passages in the Gospels in which the term *son of man* has an apocalyptic meaning represent later additions. In the oldest portions of the Gospels, which were originally Aramaic, *son of man* simply denoted *man* or *some one*, and this could be used in certain connections for the first person. But the original meaning of the term *son of man*, or rather *son of a man*, was gentleman.<sup>40</sup>

PAUL HAUPT.

#### BEHAVIORISM AND THE DEFINITION OF WORDS.

The propensity of philosophical studies to lead only to interminable arguments is one of the most striking features of the whole history of philosophy. Arguments are good, but only for the sake of conclusions; and unfortunately too many philosophical disputes lead to no results. The fact that so much discussion is rendered fruitless through lack of clearness in the definition of words, makes the study of language imperative. Before talking, take thought for the instruments of speech. This is as significant an injunction as the one that bids us inquire into our means of knowing before

<sup>38</sup> Cf. *ibid.*, pp. 70, 74, 81, 85.

<sup>39</sup> Cf. Wellhausen, *op. cit.*, p. 130.

<sup>40</sup> Cf. above, n. 13, and *Journal of the American Oriental Society*, Vol. 37. p. 14.

dogmatically building up systems of knowledge. If observance of this rule results in fewer words, no harm will be done. As Emerson has said, "Good as is discourse, silence is better, and shames it." If, on the other hand, greater precision of speech and thought result, the aim of the precept will have been attained.

A scientific study of words succeeds best if based upon behavioristic psychology. Speech is a form of behavior. It probably arose in the form of gestures, an obvious form of visible behavior, while vocal speech may at first have been the incidental accompaniment of gesture speech. However this may be, developed language consists of spoken and of written word-signs. Spoken words are the result of articulatory movements, and consist of sounds in the air; and written words consist of marks upon paper, or upon wood, stone, etc. When a man talks or writes, he is obviously *doing something*: he is then a proper object for the behaviorist to study. Speaking and writing are actual responses. The words are "response relics,"<sup>1</sup>—the more or less permanent product of responses, like footprints on the sand.

Developed language is a complex system of signs. Each word is a sign, which expresses a meaning, and which usually refers to an object—which always refers to an object in such a theory as Meinong's *Gegenstandstheorie*,<sup>2</sup> according to which every name or word has an object, or denotation, though not, in all cases, either an existent object definable in terms of sense-data, or a subsistent universal. A word always refers at least to a situation, by virtue of which it may be defined.

The statement of a behavioristic view of language-signs will be facilitated by a discussion first of signs in general. For this I shall be indebted to Mr. C. S. Peirce, the giver of the term "pragmatism" to philosophy. His terminology, at least, is valuable. Mr. Peirce defines a sign as "anything which determines something else (its *interpretant*) to refer to an object to which itself refers (its *object*) in the same way, the interpretant becoming in turn a sign, and so on *ad infinitum*."<sup>3</sup> For example, a present state of temperature, baro-

<sup>1</sup> I have borrowed this term from S. C. Pepper's doctor's thesis, *A Theory of Value in Terms of Stimulus and Response*, Harvard University, 1916.

<sup>2</sup> See A. Meinong, *Untersuchungen zur Gegenstandstheorie und Psychologie* (Leipsic, 1904), Ch. I.

<sup>3</sup> J. M. Baldwin's *Dictionary of Philosophy and Psychology*, article "Sign" by C. S. Peirce. See also J. Royce, *The Problem of Christianity*, Vol. II, and V. F. Lenzen's doctor's thesis, *Outlines of a Science of Phenomenology*, Harvard University, 1916, for a further discussion of Mr. Peirce's theory of signs.

metric pressure, wind, and clouds is a sign of some specific future state of weather. The forecaster interprets the present condition of the atmosphere which is for him a sign. An example that is a clearer illustration of the definition is that of a man gazing up at a balloon. Other men interpret it thus, and gaze up similarly at the balloon. The first man determines others to refer to the same object to which he refers, the others, interpretants of the first sign, becoming signs in turn.

Mr. Peirce distinguishes icons, indices, and symbols. As the usual use of the words suggests, an icon resembles, an index points to, and a symbol has only an arbitrary connection with, the object denoted. Mr. Peirce employs the terms in a more precise sense, and not, in all cases, a wholly acceptable one. It is sufficient for our purposes to distinguish indices and icons, which do not, according to Mr. Peirce's definition, depend for their existence upon being interpreted as signs, and symbols, which depend upon interpretants for their existence, and which have only an arbitrary connection with the objects to which they are *made to refer* by the action of interpretants. An algebraic symbol, for example, neither resembles nor points to the object that it stands for. It has simply been taken by the mathematician to stand for some object, with which it has no inner or intrinsic connection. A guide-board is an example of an index, for it literally points to some object, though Mr. Peirce would not have accepted it as fulfilling the precise requirements of his definition of an index. Mr. Peirce's example of an index is a piece of mould with a bullet-hole in it as a sign of a shot. A photograph is an index with an iconic character. Mr. Peirce's example of a sign that is purely iconic is a lead-pencil streak as representing a geometrical line.

Accepting some of Mr. Peirce's terminology, and applying it to the behavioristic situation, we shall see that the behaving organism is the interpretant of signs, and that the relation of reference of a symbol to its object is established by specific response. Professor Holt's account<sup>4</sup> of behavior in terms of specific response seems most adequate for explaining language as well as for explaining all other forms of behavior. According to Professor Holt's account, behavior is a process of release which is a function of factors outside of the organism released. The organism responds specifically to the external object. The response is released by

<sup>4</sup> E. B. Holt, *The Freudian Wish*, Supplement, "Response and Cognition," pp. 153 et seqq.; also *The Concept of Consciousness*, Ch. IX.

a stimulus and is *to* an object removed from the stimulus, except in rare and simple cases where stimulus and object coincide, as in the case of the protozoa. Specific response proper is made possible by the integration of reflexes, so that systems of connected reflexes function together, allowing recession of the stimulus from the object with reference to which the behavior is explainable. Professor Holt illustrates the situation very concretely by the case of a hypothetical two-eyed, two-finned water animal. Here stimulation of the right eye releases a response of the left fin, and stimulation of the left eye releases a response of the right fin. Thus light from a single source will cause the animal to approach it directly, for both eyes will be stimulated equally when the median line of the animal becomes directed toward the light. The behavior is then released by the immediate stimulation of the two eyes, but is a constant function of the distant light. Such a case is, of course, a very simple one. Human behavior is tremendously complex. But there has been some degree of continuity in evolution, and the essential principles of human behavior can be seen exemplified in the behavior of the simpler organisms.

Professor Holt would extend this theory of specific response to the highly developed language responses.<sup>6</sup> Words are symbols, lacking any intrinsic connection with their denotations. Thus the problem is to determine how words come to have a connection with their objects. According to Professor Holt's behavioristic scheme, a word is the stimulus that releases a response that is a function of the denotation of the word. It is organic response, consequently, that establishes the relation of reference of a word to its object. For example, the words, "Memorial Hall," for one to whom the words are in fact a sign of something, constitute the stimulus of a response that is a function of the Hall itself. An observer who had never heard of Memorial Hall, and to whom, consequently, the words were a sign of nothing, might discover the object of the sign by observing some one's behavior when the words were spoken—such behavior being an indexical interpretation of the words.

A word-sign, considered as a stimulus, differs from ordinary stimuli, since, being a symbol, it lacks any intrinsic connection with the object associated with it. It may seem circular to call a word a stimulus, and yet to say that the connection of a word with its denotation is constituted by organic response; for the definition of specific response seems to presuppose an original connection between

<sup>6</sup> See *The Freudian Wish*, p. 110.

the stimulus and the object of response. Professor Watson's view<sup>6</sup> is applicable here and solves the apparent difficulty. Professor Watson regards speech as a system of conditioned reflexes. That is, words become functional in habit systems so far as they become "substitutable for the stimulus which originally initiated an act."<sup>7</sup> A conditioned reflex may be established by repeatedly presenting two stimuli simultaneously, one being a stimulus that releases a response because of innate or at least previously acquired synaptical connections, while the other stimulus has at the start no connection with the response in question, or perhaps with any definite response at all. After a time the second stimulus alone will come to release the response that was originally released only by the first stimulus.

Thus through a process of habit formation words become substitute stimuli. There develops a correspondence between language and more overt behavior. "Words have grown up around motor acts and have no functional significance apart from their connection with motor acts."<sup>8</sup> Words probably first appeared in racial evolution through chance associations of sounds with overt behavior. They have come to be effective stimuli through association and substitution, being built up upon a basis of bodily habits. An external observer of behavior and of strange words cannot tell the denotation of the words until those individuals for whom the words have become substitute stimuli respond to the objects denoted by the words. Professor Watson exactly illustrates the view that specific response released by a word-stimulus is the indexical interpretant of the word, when he speaks of the case "where we hear a man tell us what acts he is going to perform on a horizontal bar and later see him executing those acts."<sup>9</sup>

As I have said above, we must keep in mind the distinction between a word regarded as a sign, which is a response relic, not behavior itself, and the *utterance* of a word. But, though the utterance of a word is actual behavior, it does not, however, guide us to the denotation of the word in cases where the word is unfamiliar. A further response, released by the word, is needed, and this response is an indexical interpretation of the word. The speech

<sup>6</sup> J. B. Watson, "Behavior and the Concept of Mental Disease," *Journal of Philosophy, Psychology, and Scientific Methods*, Vol. XIII (1916), pp. 589 et seqq. See also Watson, *Behavior*, pp. 328 et seqq., and H. C. Brown, "Language and the Associative Reflex," *Jour. of Philos.*, Vol. XIII, pp. 645-49.

<sup>7</sup> Watson, *loc. cit.*, (*Jour. of Philos.*), p.591.

<sup>8</sup> *Ibid.*, p. 591.

<sup>9</sup> *Ibid.*, p. 591.

response, the utterance of a word or words, may be for the social purpose of calling another's attention to something, or of preparing a motor set in another person for something that is going to happen. For one who does not know the language in which the words are spoken, however, the vocal response does not indicate the objects referred to by the speaker, or prepare the desired motor set; but the foreigner can learn the denotation of the words by observing the behavior of others who possess the proper systems of habits so that the words are effective stimuli. Thus A says to B, who is about to leave the house, "It is raining." Thereupon B procures an umbrella, and raises it as he goes out of the house. The complex of symbols or response relics, "It is raining," has thereby been interpreted for any stranger to the English language, who may be present, by B's response. B's response is an indexical interpretant of the words, and points out the denotation of the words. The words, "It is raining," or "It is going to rain," as relics of response, and mere symbols, are exactly on a level with the weather-bureau flag that is displayed when rain is expected. The weather-bureau flag has no intrinsic connection with rain. The connection that it comes to have with rain it acquires through usage, that is through specific responses released by it, which are an indexical interpretation of the sign. Many words are spoken or written for the purpose of calling attention, as, for example, "Railroad crossing; look out for the engine"; "Clear the way"; "Beware the dog"; etc. In all such cases it is obvious that, for one who had never seen or heard the words before, the symbols would denote nothing at all until they had been interpreted.

The importance of such considerations in the case of definition is apparent. If by definition of a term we seek to tell what the term stands for, what it denotes, we see that the term intrinsically denotes nothing at all. To discover its acquired denotation we must observe the whole community of persons for whom the word is actually a sign. This community consists, with respect to the word in question, of indexical interpretants, and observation of such interpretants will disclose the denotation of the word. When we say that we must inquire of human usage to discover the definition of a word, we are recognizing that human usage is an indexical interpretant of the sign, and is the only guide to the denotation. If, on the other hand, we seek by definition to tell the *meaning*, as distinguished from the *denotation*, we must still seek for the denotation first as a

guide to the meaning. A word refers at least to an objective situation in which its meaning may be sought in cases where there is no existent denotation.

The case of seeking the definition of a word is precisely analogous to the case of a stranger to a language seeking for the denotation of a word through observing the responses that it releases. In defining words one should stand outside the problem, with no preconceptions of one's own, and observe what the word-symbol is actually a sign of in human behavior. The definer can discover the class of objects to which the word refers by observing for what responses the word has become a stimulus, and then observing what class of objects such responses are a function of.

We may illustrate the part that human usage plays in establishing the meaning of words by referring to the original fixing of names to objects in the growth of language, speaking, for the sake of concreteness, in terms of an incident recorded in Hebrew mythology. When Adam confronted an animal kingdom of unnamed species, the cat became a cat when he called it a cat, and in like manner the dog became a dog. "Whosoever Adam called every living creature, that was the name thereof." Adam did not create the animals, but he did create their names, and established the relations of reference that were involved. Adam did not *judge* that this animal was a cat, that, a dog; for there was no chance of his being in error. He created the symbols (the names of the animals) and arbitrarily determined what the symbols should denote. I have spoken figuratively, but for Adam substitute the whole human community; for the animal kingdom substitute the entire world of objects; and for the creation of language all at once at a definite time in history substitute a gradual evolution; and the same principle of convention, or usage, is seen to be involved. Though it has been recognized since the time of Aristotle that convention establishes the denotation and consequently the meaning of words, too little account is usually taken of convention by philosophers when the definition of words is in question. Though Aristotle pointed out that convention establishes the reference of words to their objects, it has remained for behaviorism to give a definite description of what convention means in this connection. It means simply that specific responses are indexical interpretants of word-symbols.

The subject of definition cannot be concluded without further reference to the difference between meaning and denotation. I

have already distinguished these concepts. "The round square," for example, is a group of words possessing meaning, but no denotation, except for such a view as Meinong's—that there are objects of which it is true that they are not. The meaning of a word or descriptive phrase consists of a universal or of a complex of universals. Each constituent of the descriptive phrase, "the round square," for example, contains a universal, and the complex of universals constitutes the meaning of the phrase. Each constituent of the phrase also has a denotation, whether or not the phrase as a whole has one. The meaning is the connotation of the word, or the definition in intension, while the denotation is the definition in extension. If by definition proper we seek the meaning, or intension, of a word rather than the denotation, an inductive, empirical method of definition will consist in collecting instances of the objects which, by convention or common usage, the word denotes, and then in seeking in these cases for the universal element by virtue of which they are constituted a class. Specific response is a function of the class of objects that a word denotes, and is hence a guide to the solution of the problem of the meaning of the word.

It might be said in criticism, by pragmatists, for example, that such an account of meaning leaves out the dynamic aspect and the future reference involved in it. The dynamic factor is supplied, however, by the responding organism, and is not found in the stimulus itself. The meaning that attaches to a word-sign is not itself dynamic.

The way of procedure above indicated in seeking the meaning of words, that is, the observation of behavior that is centered around the words, and of responses released by the words—a procedure based upon a behavioristic theory of how words acquire meaning—is not unlike Dewey's view, for Dewey says,<sup>10</sup> "In the case of the meaning of words, we see readily that it is by making sounds and noting the results which follow, by listening to the sounds of others and watching the activities which accompany them, that a given sound finally becomes the stable bearer of a meaning."

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<sup>10</sup> John Dewey, *How We Think*, pp. 124 et seq.

## EXISTENCE.

I am venturing to put forward for your consideration a few remarks on "Existence," because it appears to me that many questions of no little importance have been unduly complicated by too crude an idea of "existence."

In discussing different kinds of existence, it will be convenient first to discuss that kind of existence which is significantly predicable of what are called "sense-particulars." I will call this first kind of existence "primary existence." Primary existence is always implied in the naming of anything. Thus one cannot give a proper name to anything not having primary existence. But this kind of primary existence which can, I think, significantly be predicated of sense-particulars must be carefully distinguished from reality and non-reality, which are sometimes asserted of the same kind of thing. To call one's own sense-data real in waking life and unreal in dreams is not to be identified with asserting primary existence of some of one's sense-data, and not of others. All our sense-data have equally primary existence. Why we call some real and some unreal is because some give the usual kind of correlation with other sense-data, and some do not. Ghosts which cannot be touched are "unreal." Macbeth's dagger is "unreal" because the correlation with sense-data of touch which one has learned to expect, does not in fact occur in these cases. It may be, on the other hand, that the matter of correlation is merely unusual, as for example if one dreamt night after night of a certain object being at a certain place: i. e., if one's sense-data were correlated in a certain way. Then if one went to the place at which the sense-data ordinarily would have led one to expect to see certain sense-data correlated with the others in a particular way, one might not experience such a sense-datum. Again, if in what is called "waking life" one saw sense-data at different times which one could correlate by saying that they all belong to the sun, one would probably see certain sense-data as expected at other times; but if the sense-data had only been given in dreams, any reference of that kind would very probably be fallacious. Thus sense-data are said to be unreal when inferences usually true turn out to be false. Thus while it appears essential to predicate primary existence of all sense-data with which we are

acquainted, sense-data can be said to be real or unreal in a definite sense.

The things which make up the outside world appear to be particulars and facts. Facts therefore have a kind of existence, which we will call "primary existence of facts," but which is not of the same kind as that for particulars: for the intrinsic nature of facts is different from the nature of particulars, and in view of their intrinsically different natures, the same property cannot significantly be predicated of both. As far as one can see, this apparatus of particulars and facts is adequate for the building up of empirical knowledge. Thus, we do not postulate existence of the primary kind to any other objects of our thought. We do not assume primary existence for physical objects and points and other non-experienced things.

Having considered briefly the crude data given empirically, we have to build up the other objects of thought by means of logical construction. It would perhaps be advisable to state shortly what appears to be the essence of this method. The problem for the solution of which this method is to be used is as follows. Certain things are given in experience—sense-particulars of various kinds and facts. We then wish to find other terms, such that in analyzing any proposition in which they occur, they themselves do not occur, but only the things which are given in experience. At the same time, these terms are to have certain definite properties. Then although a term  $a$  (say) appears in a proposition  $\phi a$  yet it will be possible to analyze  $\phi a$  into a proposition not containing  $a$  if  $a$  stand for a logical construction. In this way we shall be able to use propositions apparently containing  $a$  without in any way prejudging whether  $a$  is a thing having primary existence or not.

It is of extreme importance that we should be able to do this, for it has been held that in the proposition, e. g.,

"the round square does not exist"

what is asserted is that there is an entity which is round and square, and it has the property of not existing. This, however, is an unsatisfactory interpretation, and a better one can be given as Mr. Russell has shown, viz., "It is not the case that there is a thing both round and square." The "round square" appears to be a constituent of the original proposition and in the proposition some property seems to be predicated of this fictitious object. But with

Mr. Russell's theory of "incomplete symbols," the proposition is analyzed in such a way that the object disappears.

Another example may make the point clearer: the well-worn topic of points in geometry seems to provide a good illustration. We have given in experience sense-data of different sizes, but all these sense-data have some magnitude: one never directly apprehends a sense-datum which could be said to be a point, in the ordinarily understood geometrical sense of the word. Yet propositions apparently containing points occur: in fact by using points with entire and childlike trust the geometers have been able to predict the occurrence of sense-data with startling accuracy: the geometer is in the somewhat paradoxical position of deducing certain propositions apparently containing things like points from empirical data: and further his propositions, although expressed in the, empirically speaking, obscure terminology of points and instants, have the elegant property of being such that there is an interpretation in terms of sense-data which makes them verifiable. Thus, for instance, the physicist proves to his own satisfaction that an object will fall to the ground if not held up: this statement, it is interesting to observe, is in terms of things which appear to be entirely unknown in experience: one cannot, it would appear, directly apprehend a physical object. Further, it is very probable that one cannot verify the motion completely; for having certain physical limitations we cannot possibly "see the object" at every point of its path, unless space has an *extraordinary* degree of discreteness. However closely we look, it seems probable that we shall miss many intermediate positions—in fact, if space has even the mildest form of continuity, we shall always miss infinitely more positions than we shall see—and I use the word "infinitely" in a strict sense. But we shall find that if we look at a certain place at a certain time, we shall have the sensation called "seeing the object there." Thus the physicist formulates a system apparently based on empirical evidence, but which is expressed in obscure terms like instants, points, etc., which no one, I think, would venture to suggest are given in experience. The extraordinary success of physics in predicting occurrences of sense-data rather points to the fact that these unexperienceable things such as points and instants have at least a pragmatic function of providing a useful terminology. Now the method of logical constructions offers a solution of this paradox. If we can construct points (say) out of sense-data, we shall be able

to understand how it is that they work in a science which is founded on empirical data. To a certain extent this has definitely been done by Mr. Russell and Professor Whitehead. It would appear that it is now possible to construct things which have the properties of points etc., and which are such that propositions in which they occur can be expressed entirely in terms of sense-data. It is only possible to get a discrete space out of sense-data actually experienced; but it is, of course, a mere prejudice that we should always imagine space to be continuous. It is a somewhat technical matter how exactly this can be done; but my point is that there is an important problem to be solved, and that this method appears to indicate a solution, and further, as I will now try to show, the whole point of the matter lies in the kind of existence which can be significantly predicated of points, instants, etc., on purely empirical grounds. William of Occam appears to have been a philosopher of some importance, but the most striking thing which is now coupled with his name is "Occam's razor"—and this wonderfully subtle methodological axiom, it is sad to find, is not really due to William of Occam at all. Occam's razor states that "entities are not to be multiplied without necessity." The extreme importance of this principle is generally maintained among logicians of a certain school and should, I think, be more universally recognized to be of fundamental importance. The essence of the principle lies in postulating primary existence of the fewest possible number of kinds of things necessary to explain the facts: then the method of logical constructions will allow us apparently to use entities in propositions without in advance giving them primary existence. The essential point about these logical constructions is that propositions in which they occur can be made to dissolve again into their constituent elements, all of which have primary existence. Thus, for example, suppose one says two straight lines cannot enclose a space, one does not immediately assume primary existence for lines etc., for lines of the most common and conventional geometrical variety having no thickness are not given in ordinary experience. Rather we look around for what is given, and logically construct them from these data. We are given sense-data of varying sizes, and by taking classes of these data all enclosing some of the others, we can with some elegant manipulations logically construct a point; i. e., we can find classes of sense-data which have all the properties which geometry requires of points. Then with the help of some ideas of

order which are given in experience, one can get a line, and so on. In this way we *construct* a line. But its existence is not the kind of existence possessed by the sense-data out of which it is constructed. It is of such an ephemeral nature that if one looks closely at propositions in which it occurs, it will disappear and only sense-data will be left. It does not belong to the world of sensation: it cannot be touched or seen. It is not verifiable in sense and has the same kind of existence as the fairies of our childhood, which disappeared when we turned round to look at them more closely. Of course it would be just as great an error of logical taste to assert dogmatically that points etc., have not got primary existences, as to assert dogmatically that they have: it would in fact be a logical mistake fundamentally of the same kind. Occam's razor does not advocate that. One leaves open the possibility of points and non-experienced things having primary experience: but just as it is an error of logical style to assert the existence of things unnecessarily, so it is an error not to draw all the implications of the given data. That is to say: one does not assert the existence of points, as there does not seem to be any necessity for such an assertion for a satisfactory explanation of the given proposition: next, of course, one does not assert the non-existence of these things, but further one would assert that the given material is insufficient for such an assertion, and that therefore those who make such an assertion either have some private channel of knowledge, to which we have not got access, or are making the assertion on insufficient grounds.

In these few remarks I have tried to show that the question of "existence" is intimately connected with the logical treatment of epistemological questions of no little importance: that is my excuse for attacking the question. It appears to me not unlikely that a less crude idea of existence will give greater scope in the kinds of terms that one can use in propositions; and further more particularly that Mr. Russell's brilliant method of logical constructions, and its bearing on the existence of terms involved in propositions, at least indicates the direction in which the solutions of many epistemological questions of fundamental importance may be considerably advanced.

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## THE RELATION OF LOGIC TO MATHEMATICS.

A survey of the growth of the kindred sciences, logic and mathematics, leads inevitably to the conclusion that the two are inseparably connected. Exact thought seems to contain an inherent dialectic, of such character that mathematics without logic is formless, —and logic without mathematics is empty. The historical beginning of mathematics in the days of Ahmes, the pebbles in the sand, and the abacus, shows that it arose essentially from practical needs; its problems and symbols in this primitive stage must be regarded as essentially relevant to physical acts and objects. Arithmetic and geometry on this level of culture, form necessary means of adjustment to concrete phenomena and are as independent of human volition as any thing could well be. However, we find conflicts constantly cropping up; the budding science is unhandy and cumbersome in its very lack of coherency, and from practical reasons, we find a demand that mathematics be reduced to a coordinated whole.

As a result order and system gradually replace the heterogeneous complex of practical problems, and we come to the development of the Euclidean system, based upon axioms which are justified by their self-evidence. The close intimate connection with the physical world-order fades into obscurity; the lines and figures of geometry are not bodies or parts of bodies but independent mental constructions. Finally the Kantian criticism expounds the view that the axioms are true, not because they apply to the external and independent world-order, but because they are *necessarily* bound up with our forms of thought, because we can think in no other way without contradiction. Whereas at first human choice had nothing to do with mathematics because of the hard, unyielding character of physical fact, under the critical view, it is summarily dismissed because of our total inability to alter the make-up of our understanding.

The discovery of non-Euclidean geometry has gradually created a revolution in this point of view. It is seen with ever-increasing clearness that a decision of the will is involved in the establishment of each set of axioms, and that choices are involved which no future experiment can condemn or justify. For example the amount by which the angle-sum of a triangle differs from two right angles

may be so small as to baffle any observation, and it is thus entirely possible that we are dwellers of a non-Euclidean world. From a study of the objective and independent, mathematics thus becomes more and more concerned with a subjective element of arbitrary choice. Self-evidence disappears as a criterion, and is given its death-blow by Weierstrass in his brilliant example of a continuous curve which does not have a tangent.

Freed in this way, a fact which is at once a privilege and a restraint, mathematics develops in a double direction toward rigor and formalism. The growth of rigor may seem opposed to the increase of choice and independence of physical fact, but in reality the two are closely connected. Just as discipline is more easily effected in an organized army than among a hundred disconnected bands of outlaws, so, as mathematics becomes gradually reduced to a single rigorous system, it becomes increasingly submissive to human will, and develops a plasticity seemingly far removed from the condition of the hard, unyielding physical fact. From the time of Weierstrass, the tendency has been very strong to unify mathematics in terms of dependence upon the natural number system of positive integers. Any set of axioms defining a special part of the science is regarded as dependent in some way upon this natural number system in regard to consistency, categoricity and mutual independence. In this way the remote parts and latest developments of mathematics are elevated to the level of the elementary positive integers, gaining in certainty with the progress of rigor.

Combined with this, we have the counter-movement toward formalism, which brings with it the growing realization of the importance of the subjective element of choice. The principle of the so-called "permanence of forms," which accounts in a rather romantic way for the introduction of irrational, ideal, and imaginary numbers by attributing it to a demand which the mathematician makes upon experience, the study of groups as they appear in the different fields of order, the emphasis on the arbitrary and relative character of the indefinables,—all these lead to confidence in the power of mathematical creation and the adoption of the point of view that the positive integers are only a particular illustration of a peculiar kind of mathematical type of order, of which there are many other representations. Here we have commendable harmony and synthesis in mathematics, but it is not gained without cost. We must remember that if the remote parts of mathematics are just

as certain as the system of positive integers, by the very identical reasoning it follows that these same positive integers are no more certain than the remote parts of mathematics.

More than this, just as each part of mathematics depends upon its own postulates and indefinables, so does the natural number system in its turn. The doctrine of formalism tells us that a term is indefinable and a proposition postulated only in reference to a particular system of axioms and terms, in another system we have the terms defined and the propositions proved. Because of this relativity we may well inquire as to the essential nature of this number system upon which mathematics is supposed to depend. Is it itself something plastic, responsive to our demands, or is it objective and independent? The formalist is forced to admit that an infinity of different sets of axioms for the positive integers are possible. Why should we use any particular one of these rather than another? If no single one is to be preferred, and the essence of arithmetic lies in the theorems, and not in the postulates and indefinables, then our choice seems to have nothing to do with the matter. Confronted with this situation, the formalist is forced to an extreme position and enunciates the theory of *nominalism*,—that numbers, and, in fact, mathematical entities in general, are nothing more than mere words; that they are not real as physical objects are real, but are free creations of the spirit with no necessary connection with objective existence. Not use, interpretation, or application is the goal of mathematics, but consistency, alone; and apart from the requirements of consistency, all limitations are to be cast aside as fetters on the intellect.

This radical nominalism is, it should be noted, in distinct and admitted opposition to the original character of the science as it developed from the study of the hard and fast physical problem. The only law which is now recognized is the law of logical consistency, and the mathematician believes himself to have attained his goal of independence and freedom. Yet wherein can he boast of freedom? Divorced from restraint and reality, he seems to be reduced to contemplation and admiration of his own mental processes, and submissive to self-imposed rules alone. As Brunschvig aptly remarks, "Mathematics has lost its claim to be a science, for science at least pretends to truth."

The temporary success of this impulse toward freedom is not without corresponding reaction. We see Frege indignant against

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the possibility of the subjective and arguing that the mathematician creates just as little as the geographer, that he can only describe what is *there*; Royce comparing the search of the arithmeticians for primes to the labors of the astronomers and impressed with the obstinate character of mathematical material. Indeed self-imposed fetters are often the most unyielding of bonds; witness the extremities to which a man will go for the sake of his honor, to which no external necessity could drive him.

Frege's attack upon this distasteful situation is at its most vulnerable point. If the mathematician is submissive to logic alone, that does not mean that the non-logical part of mathematics is subject to individual caprice, but that it does not exist. *Mathematics is objective and non-plastic because it is a part of logic.* Because the axioms of arithmetic can be proved from those of logic and the indefinables defined in logical terms, arithmetic and the whole of analysis has the certainty and consistency of logic itself. In this haven of rest Frege and Russell at first feel themselves completely satisfied.

But not for long. The inherent march of the dialectic is not to be halted. The supposedly safe ground of logic turns out to be a quicksand of contradictions, for the very reduction of mathematics to logical form has necessitated the employment of the notion of the class in such a way that from this and kindred notions there arise a veritable plague of paradoxes and contradictions. Mathematics may have all the certainty of logic, but these specimens of logic seem to be infected with an uncertainty far worse than any one had ever suspected to be present in the exact sciences.

Russell's remedy is swift and drastic. Logic is to be so changed that the paradoxes are avoided. The indefinables and primitive propositions, consequently, may be destitute of self-evidence (the axiom of reducibility, for example, of which one can only say at best that it has "every chance of being true"),—but that is a triviality compared with the victory over the paradoxes. However, when we find in the *Principia*: "Some propositions must be assumed without proof, since all inference proceeds from propositions previously asserted.... These, like the primitive ideas, are to some extent a matter of arbitrary choice," we may be pardoned for concluding that the work has not attained its goal, and that the hoped-for objectivity has not been reached. In fact, instead of an over-individual independent logic we have the logic of Russell and the

logic of Frege and the logic of McColl and the "new logic" of Mercier and the anti-logic of Schiller, so that in making logic the master we allow caprice to play a more important part than ever even "mathematical creation" played in mathematics.

But this is impossible, it may be contended. Russell and Frege may err in details but logic itself is serene and independent. It is the articulate expression of *the way men ought to reason*. Just so long as this contention remains in its pristine vagueness, is the adherent of such a theory safe from attack;—but let him descend from his abstractions and formulate a particular code, that *thus* and *so* is the way men ought to reason, and he will be objected to from all sides. The proponent of the code is unable to justify his concrete propositions except by reiteration of their self-evidence and his own personal convictions; he is prevented from appealing to the verdict of experience by very definition, since in no way can we derive what ought to be from what is, or has been. That "*the way men ought to reason*" gives logic an *ideal* is not to be seriously objected to, but this tells us no more than to be logical is to be logical.

From this we may turn to the opposite extreme, from the empty abstraction to the concrete event; from such a view-point logic is independent of human volition because it is the formal expression of the way men *do* reason. But this is a theory which is even less tenable than the preceding, for no one can deny that men reason illogically. That whatever is concluded, is logically concluded is no more to be accepted than the equally radical ethical doctrine, that whatever is, is right.

We are confronted with a situation that is far from promising. Mathematics is reduced to arithmetic and arithmetic in great part at least, to logic; but logic is so far from being independent of the will, as the mathematician would have it, that it seems to be neither the way men ought to reason nor the way men do reason, but something as yet entirely indeterminate. The mathematician is in an intolerable situation. He has gained freedom, it is true, but a freedom which is worse than the dependence of the physical scientist upon observation and experiment,—because it is not a freedom which has been wrested from a grudging opponent, but a freedom which he has bestowed upon himself. And in such an achievement there is little glory.

Nevertheless the chess-player and the mathematician must be

placed in different categories, for the true mathematician is not willing to be considered the devotee of "playing the game." He feels the *significance* of concrete experience. If he invents a branch of mathematics and cannot show either an interpretation for his undefined symbols or an application in the treatment of some pre-existing problem, his work will be liable to neglect and rejection. It is demanded of him that he *demonstrate* the consistence of his axioms by concrete illustrations, and he in his turn demands of logic that it give him a definition of consistency. Once this definition is gained, he considers himself bound by it. The logic, however, must in its turn be justified. How can its postulates be shown to be consistent and mutually independent? The answer is short and to the point, they *cannot*.

We are led to a new point of view. Logic does not contain an "ought," nor yet an "is"; it is an *accepted code of validity*, a kind of gentlemen's agreement, the violation of which should lead to scientific ostracism. So much in the abstract, but how are we to give this code content? If individual choice is allowed to interfere, we destroy the acceptability of the code, its universality. The Gordian Knot is not to be loosened; it must be cut. Just as the proof of the pudding is in the eating, so the justification of logic is in its use; we guarantee the acceptability of the code by defining it as what is accepted.

Thus if we are to give logic a progressively definite content we must condemn it to a patient abstraction from, and analysis of, the best usage of science. The logician, from this point of view, no longer dwells in lofty *a priori* solitude, holding absolute dominion over science and mathematics, but descends to the uncomplaining study and interpretation of the content of these subjects, having learned that true mastery is to be gained by service. Thus we are led again to the sphere of the concrete event and we might be supposed to have returned to our starting-place. The process is not a circle, however, and this new point of view is infinitely higher than the first. When we fully realize that consistency itself is given content by the *will to be consistent*, we see how it is that mathematics is an expression of that will exercising itself upon and in an independent world. The freedom which is present is not a freedom which is to be desired, but which is to be resolutely denied. We do not find the code of Aristotle springing full-born from the depths of his subjective experience; it is the result of his and Plato's study

of the biology and mathematics of their day, and no one would term the pre-Aristotelian geometry illogical because when it was invented, there was no such thing as logic.

Logic is the articulate development of the determination to be rational, and the progress of exact thought brings with it an increasing comprehension of the fact that the will to be rational is at once its motive power and its goal. The aim toward independence of the subjective does not give us independence, but it keeps us moving in that direction in which independence lies,—for he alone is a slave who is content to be one. The study of scientific and mathematical method may not give us forthwith our goal of a universally accepted code; we may not be able to realize the conception of a time when the way men ought to reason, the way men do reason, and the accepted code will coincide in part and whole. Yet it is no small thing that we are able to appreciate that the march of rational thought lies along this line, that logic is given content by the impulse toward rationality and that the knowledge of this content is to be gained by a study of the process itself. We are at least in possession of the differential coefficient.

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#### INDEPENDENCE PROOFS AND THE THEORY OF IMPLICATION.

Mathematical or Symbolic Logic claims to present a theory of deduction. It is the thesis of this article that the traditional symbolic logic, represented by the system of Whitehead and Russell's *Principia Mathematica*, fails to give a correct theory of mathematical deduction. It will be shown that the notion of mathematical deduction involved in the recognized methods of proving the independence of sets of postulates is incompatible with the theory of deduction furnished by mathematical logic.

Modern workers on the foundations of mathematics have formulated certain methods for the proof of the independence of a set of assumptions or postulates for a deductive theory. In a set of independent postulates no one of the postulates is deducible from the others. To prove the independence of a set of assumptions one must show, for every assumption of the set, that it cannot be derived as a formal consequence from the other assumptions. Hunting-

ton<sup>1</sup> has formulated the method as follows, "The method for establishing the independence of a set of postulates consists in exhibiting, in the case of each postulate, an example of a system which satisfies all the other postulates of the set, but not the one in question." "In this section we establish the independence of the postulates A1 – A4, M1 – M5, by exhibiting, in the case of each of the postulates, a system which satisfies all the other postulates, but not the one for which it is numbered. No one of the postulates, therefore, is deducible from the remaining postulates, for, if it were, then any system which possessed all the other properties would possess this property also, which, as the examples show, is not the case." The method has been formulated by Young<sup>2</sup> in almost the same language. "The second fundamental property sought for in a set of assumptions is independence. By this we mean that none of the assumptions can be derived as a formal logical consequence from the others.... In general, an independence proof is constructed in the following way: Let there be given a set of assumptions of any nature, numbered 1, 2, 3, ..., n, and let it be required to prove that assumption no. k is independent of all the others. We must find one concrete representation for which all the assumptions, except no. k, are satisfied and for which no. k is not true. The exhibition of such a concrete representation constitutes an independence proof of the assumption k."

The foregoing quotations from mathematicians indicate precisely the notion of independence. It is clear that the concept of independence involves the nature of logical deduction; hence the method of independence proofs affords a test for a theory of logical deduction.

Now it is the claim of symbolic logic that it furnishes the rules of deduction whereby theorems may be deduced from fundamental assumptions. Thus Mr. Russell<sup>3</sup> states, "Symbolic or Formal Logic—I shall use these terms as synonyms—is the study of the various general types of deduction.... What symbolic logic does investigate is the general rules by which inferences are made, and it requires a classification of relations or propositions only in so far as these general rules introduce particular notions."

<sup>1</sup> The method of independence proofs may be studied in any of the monographs and articles by Prof. E. V. Huntington. The above quotations are from his monograph on *The Fundamental Laws of Addition and Multiplication in Elementary Algebra*, pp. 4 and 32.

<sup>2</sup> J. W. A. Young, *Fundamental Concepts of Algebra and Geometry*, p. 47.

<sup>3</sup> Bertrand Russell, *The Principles of Mathematics*, pp. 10 and 11.

The *Principia Mathematica*<sup>4</sup> offers a theory of logical deduction. Thus, "The purpose of the present section is to set forth the first stage of the deduction of pure mathematics from its logical foundations. This first stage is necessarily concerned with deduction itself, i. e., with the principles by which conclusions are inferred from premises.... It is in fact the theory of how one proposition can be inferred from another. Now in order that one proposition may be inferred from another, it is necessary that the two should have that relation which makes the one a consequence of the other. When a proposition  $q$  is a consequence of a proposition  $p$ , we say that  $p$  implies  $q$ . Thus deduction depends upon the relation of implication, and every deductive system must contain among its premises as many of the properties of implication as are necessary to legitimate the ordinary procedure of deduction. In the present section, certain propositions will be stated as premises, and it will be shown that they are sufficient for all common forms of inference. It will not be shown that they are all necessary, and it is possible that the number of them might be diminished. All that is affirmed concerning the premises is (1) that they are true, (2) that they are sufficient for the theory of deduction, (3) that we do not know how to diminish their number."

Thus it is evident that symbolic logic purports to furnish the principles of logical deduction, by means of which theorems are deduced as logical consequences from fundamental assumptions. Logic thus presents an organon of proof.

What now is the nature of deduction in symbolic logic, in comparison with the deduction of mathematical practice? In the following, I shall show that logical deduction, as implied by the method of independence proofs, is at variance with the theory of deduction, as formulated by symbolic logic. Huntington's assumptions for algebra may be used in illustration. Of the set of independent postulates, let us consider the following two,

$$A2 \quad (a+b)+c=a+(b+c)$$

$$M5 \quad a \times b = b \times a.$$

Now symbolic logic offers as a true theorem, the rule that a true proposition is implied by any proposition, i. e., theorem \*2.02 of *Principia Mathematica*. Let us apply this rule of inference to Huntington's independent postulates.

$$2.02 \quad q \cdot c \cdot p \vdash q;$$

<sup>4</sup> Whitehead and Russell, *Principia Mathematica*. Vol. I, p. 94.

substituting M5 for  $q$  in 2.02, we get,

$$a \times b = b \times a \cdot c : p \cdot c \cdot a \times b = b \times a.$$

Applying \*1.1, the Principle of Inference, we deduce

$$p \cdot c \cdot a \times b = b \times a.$$

Substituting A2 for  $p$  in the above expression, we get,

$$(a+b) + c = a + (b+c) \cdot c \cdot a \times b = b \times a.$$

Since  $(a+b) + c = a + (b+c)$  is one of the postulates of the system, we are able to deduce the other postulate by again applying the Principle of Inference.

Thus by rigorous logical deduction we have succeeded in establishing a relation of implication between two independent postulates, and thus the one postulate is logically deducible from the other. The same proof can be applied to the other members of the set, and hence the set of postulates is not independent.

Now it probably will be maintained that the foregoing proof is incorrect. Huntington's postulates are propositional functions, whereas the above theorem of the *Principia* states implications for propositions. But the implication upon which the defender of the *Principia* will rely is formal implication, and formal implication involves a relation of propositional functions.

The contention of critics will be that the concept of independence applies only to postulates, that is, to propositional functions, and not to propositions. But in reply it may be argued that the concept of independence is applicable to propositions, as well as to functions. It is evident that deductive relations can be set up between propositions. In the case of postulates for geometry, those of Euclid, for example, the deductions may be carried out with the propositions which result when a concrete interpretation is given to the system. Indeed, the first deductions were of that nature. Deduction was discovered with reference to propositions, and the extension of the idea of deduction to propositional functions is a comparatively recent development. Hence we must admit that there may be deductive relations between propositions.

Now the aim of independence proofs, practically, is to show, once and for all, that certain deductive relations cannot be established between postulates. Independence proofs are for the purpose of avoiding further attempts to deduce postulates from other postulates. And the results of this method should be available for the relations between propositions, as well as between functions. By

independence proofs we prove the postulates of abstract geometry to be independent. But it is equally of interest to know that the fundamental propositions of Euclid, which result when we give a definite interpretation to the blank forms, are also independent. Otherwise we might seek to reduce the number of the propositions which correspond to the postulates of the abstract theory. This was the aim of Euclid and his followers, who tried to prove the parallel postulate, but without success. But this failure did not prove the absence of deductive relations; independence proofs are required to set the matter at rest. Surely it is relevant to say that in a concrete geometry the parallel postulate is independent of the other postulates, and not that it is independent only in the abstract system. I conclude that it is decidedly of value to be able to speak of the independence of propositions.

Thus far I have argued that the notion of independence is of value with respect to propositions, as well as to functions. In that case it is advisable for the sake of simplicity to employ a notion of independence which can be applied to propositions, as well as to functions. This demand is strengthened by the fact that, using the ordinary methods of mathematicians for the deductions between propositions, no one has yet succeeded in establishing deductive relations between propositions which result when concrete interpretations are given to independent postulates. This creates a presumption that no deductive relations can be established between these propositions, and suggests that when no deductive relations can be established between postulates, they cannot be established between the corresponding propositions. That is, it appears as if the mathematicians used independence in the same sense for propositions, as for functions. If now, we hold that independence has the same meaning for propositions as for functions, an independence proof for functions is an independence proof for the corresponding propositions. The presumption created by the failure to find deductive relations for propositions or functions, is then transformed into definite proof by the establishment of independence proofs for the corresponding functions.

I have said that the failure of mathematicians to find deductive relations between the propositions, which correspond to independent postulates, creates a presumption that independence applies to propositions, as well as to postulates. This is further supported by the fact that deductions of theorems from assumptions proceed, in

mathematical practice, by the same methods, whether the assumptions are kept in postulate form or are given a concrete interpretation. Thus consider two assumptions  $xRy \cdot yRz \cdot c \cdot xRz$ , and  $xRy \cdot c \cdot yRx$ . In determining their deductive relations, Huntington does not give a concrete interpretation to the  $x$ ,  $y$ ,  $R$ ;  $x$  and  $y$  may be numbers or points,  $R$  may be "smaller than" or "to the left of," etc. Huntington deduces his theorems in functional form. But suppose he started out with the interpretation of  $x$  and  $y$  as numbers and  $R$  as "smaller than." Then his deductions would proceed in exactly the same way. The main purpose of working with blank forms is not merely to obtain generality, but also to avoid the tendency of the mind to rely upon intuition. But in the latter case the argument for the use of the blank form in deduction is psychological rather than logical. If we are careful, we can deduce with propositions, and avoid the dangers of intuition; and our deductive procedure will be exactly the same as for the blank forms. There is no difference in the machinery of deduction for propositions or propositional functions. If that is the case, one is inclined to the opinion that independence must have the same fundamental meaning for propositions, as for propositional functions.

Let us now recapitulate the argument. I showed that by means of the theorems of the *Principia* it is possible to establish deductive relations between independent postulates. Confronted by the distinction between postulate and proposition, I pointed out that in mathematical practice this distinction is not relevant to the concept of independence. There is reason to believe that from the mathematician's point of view, independence of postulates involves the independence of the corresponding propositions. The attempt to save the *Principia* by this distinction is not adequate. Even if we are unable, by means of the *Principia*, to prove the postulates dependent, we can prove the dependence of the corresponding propositions, which seems to be in conflict with mathematical practice. But even this way of escape seems closed to the defenders of the *Principia*, for it seems possible to argue that we can set up implication relations between the propositional functions, which by means of independence proofs are proved to be independent. The question is whether there is an analogue, for propositional functions, of  $q \cdot c \cdot p \rightarrow q$ . If there is such an analogue, then Huntington's independent postulates may be substituted and proved no longer independent. There is evidence to believe that we can establish such an analogue.

Consider the proof of \*9.34, which is,  $(x) \cdot \phi x \cdot c : p \cdot v \cdot (x) \cdot \phi x$ . We start out with \*1.3,  $q \cdot c \cdot p \vee q$ , and substituting  $\phi x$  for  $q$  we get,

$$\phi x \cdot c \cdot p \vee \phi x.$$

Now the next step uses \*9.13, by means of which a real variable is turned into an apparent variable. This then implies that the  $\phi x$  in the above proposition is a propositional function.

Now for our purposes we also substitute  $\psi y$  for  $p$ , and thus get

$$\phi x \cdot c \cdot \psi y \vee \phi x.$$

By the same principle one can establish

$$\phi x \cdot c \cdot \psi y \cdot c \cdot \phi x.$$

Thus we have the analogue of "A true proposition is implied by any proposition," for propositional functions. By substituting Huntington's independent postulates we seem to be able to come out with implication relations between these postulates. Since they are assumed, we can apply \*1.11, the Principle of Inference with respect to functions, and thus deduce one independent postulate from the other.

Now it may be objected, although with no apparent ground, that my argument requires the right to substitute  $\phi x$  for  $q$  and  $\psi y$  for  $p$ . But the legitimacy of this seems to be even further supported by the results obtained by generalization. Let us begin with

$$\phi x \cdot c \cdot \psi y \cdot c \cdot \phi x.$$

By the use of \*9.13 and proposition \*9.21, which is

$$(x) \cdot \phi x \cdot c \cdot \psi x \cdot c : (x) \cdot \phi x \cdot c \cdot (x) \cdot \psi x,$$

we can set forth the following steps,

$$\begin{aligned} & \phi x \cdot c \cdot \psi y \cdot c \cdot \phi x. \\ & (x) : \phi x \cdot c \cdot \psi y \cdot c \cdot \phi x. \\ & (x) \cdot \phi x \cdot c : (x) : \psi y \cdot c \cdot \phi x. \\ & (x) \cdot \phi x \cdot c : \psi y \cdot c \cdot (x) \cdot \phi x. \\ & (y) : (x) \cdot \phi x \cdot c : \psi y \cdot c \cdot (x) \cdot \phi x. \\ & (x) \cdot \phi x \cdot c : (y) : \psi y \cdot c \cdot (x) \cdot \phi x. \\ & (x) \cdot \phi x \cdot c : (y) \cdot \psi y \cdot c \cdot (x) \cdot \phi x. \end{aligned}$$

Now on p. 139, Vol. I, of the *Principia*, we are told that  $(y) \cdot \phi y$  is the same proposition as  $(x) \cdot \phi x$ .

Hence we may write,

$$(x) \cdot \phi x \cdot c : (x) \cdot \psi x \cdot c \cdot (x) \cdot \phi x.$$

Now \*9 proves that apparent variable propositions may be substituted for  $p$ ,  $q$ ,  $r$ , in the propositions of the numbers from \*1 to \*5. Hence the proposition at which we arrived, starting from  $\phi x \cdot c \cdot \psi y \cdot c \cdot \phi x$ , is known to be true by another method. Since we have arrived at a true conclusion by correct reasoning, the starting-point must have been at least probably valid. In other words, the true consequence deduced from  $\phi x \cdot c \cdot \psi y \cdot c \cdot \phi x$  further supports the right to assert it. This line of argument is further supported by the fact that the halfway stage,  $(x) \cdot \phi x \cdot c : \psi y \cdot c \cdot (x) \cdot \phi x$ , evidently can be asserted. For, as a consequence of \*9, the truth of

$$(x) \cdot \phi x \cdot c : p \cdot c \cdot (x) \cdot \phi x$$

cannot even be questioned, and using the method of \*9.34, we get

$$(x) \cdot \phi x \cdot c : \psi y \cdot c \cdot (x) \cdot \phi x.$$

We thus have direct and indirect evidence for the right to assert  $\phi x \cdot c \cdot \psi y \cdot c \cdot \phi x$  and to use it to establish implication relations between propositional functions.

Now there is even another way of approaching the matter. From the doctrine of systematic ambiguity one would be inclined to suspect that the *Principia* would permit the substitution of functions for  $p$ ,  $q$ ,  $r$ , etc. That this has been done seems clear from a study of the proofs.

Consider the proof of \*22.51  $a \times \beta = \beta \times a$ .<sup>5</sup>

We start out with \*22.33  $x\alpha \times \beta = x\alpha \cdot x\beta$ .

Now \*4.3, which is next used, is  $p \cdot q = q \cdot p$ .

Substituting  $x\alpha$  for  $p$ , and  $x\beta$  for  $q$ ,

we get  $x\alpha \cdot x\beta = x\beta \cdot x\alpha$ .

Thus the procedure of deduction demands that  $x\alpha$  and  $x\beta$  be substituted for  $p$  and  $q$ .

But  $x\alpha$  and  $x\beta$  are propositional functions. Now most of the proofs in the calculus of classes require the substitution of propositional functions like  $x\alpha$ ,  $x\beta$ , for  $p$ ,  $q$ , etc. Thus it seems that we may substitute propositional functions for  $p$  and  $q$ . Hence there seems to be no reason why we may not substitute propositional functions in propositions such as  $q \cdot c \cdot p \cdot c \cdot q$ . That is, we may substitute Huntington's independent postulates and thus establish implication relations between them. Then by the application of the Principle of Inference it is an easy matter to deduce one proposi-

<sup>5</sup> The symbol  $\times$  is employed as the sign of multiplication, instead of the symbol used in the *Principia*.

tional function from the other. Thus despite independence proofs, we are able, by means of the *Principia*, to deduce one independent postulate from another, and we have now seen that the difficulties are not set aside by the distinction between propositional functions and propositions.

The only set of independent postulates is one which consists of only one postulate. As soon as two postulates are assumed as the basis of a deductive system, we are able to deduce, as the first theorem, that they are not independent, no matter whether they are propositions or functions.

The conclusion to be drawn from the preceding discussion is that the theory of deduction of the symbolic logicians is not in agreement with the sort of deduction used by the mathematicians.<sup>6</sup> Postulates proved to be independent by the method of independence proofs can be shown to be dependent by the rules of the *Principia*. Either symbolic logic does not furnish safe rules of deduction for pure mathematics, or else mathematicians, who have used independence proofs to show that assumptions are not deductively related, have been wandering in error.

V. F. LENZEN.

#### BOOK REVIEWS AND NOTES.

**MEDICAL CONTRIBUTIONS TO THE STUDY OF EVOLUTION.** By J. G. Adami, M.D., F.R.S., F.R.C.P. Pp. xviii, 372. London: Duckworth and Co., 1918. Pris 18s. net.

The first part of this very stimulating book consists of the Croonian Lectures of 1917 delivered before the London Royal College of Physicians on "Adaptation and Disease," and the two other parts, "Heredity and Adaptation" and "On Growth and Overgrowth," are reprints of earlier (1892-1914) papers and addresses by the author which bear upon adaptation and tissue modification. In fact, Dr. Adami found that his earlier work was not known to biologists, and it also seemed useful "to present the conclusions reached, not so much from the point of view of their medical bearing, as from that of their biological significance, in order that both morphologist and physician might observe the direction in which medical research is surely leading us with reference to matters which form the basis of general biology."

<sup>6</sup> The conclusions of this article agree with the criticisms of the *Principia* by Prof. C. I. Lewis. Professor Lewis's algebra of strict implication is the only deductive theory, of which I know, which is in accord with the kind of deduction used by mathematicians in independence proofs.